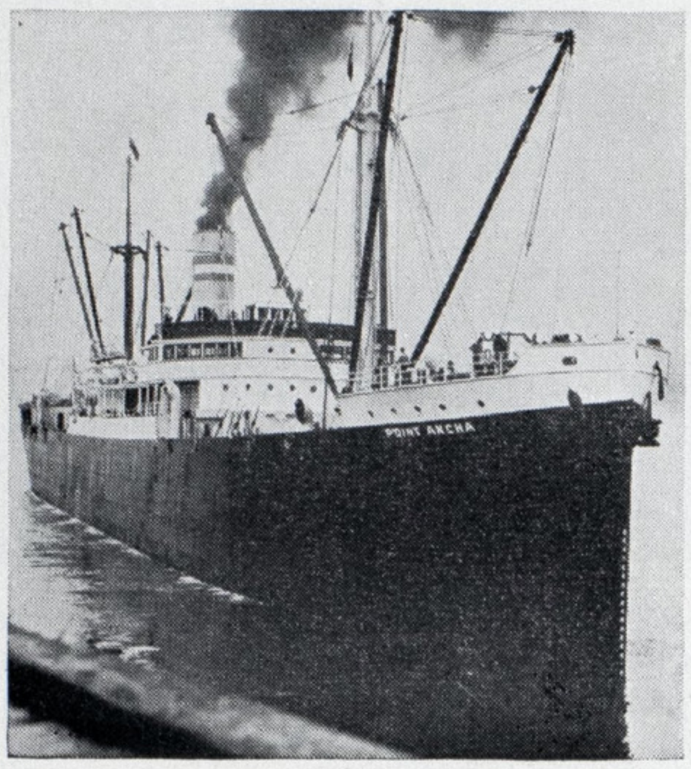
Marine Review

SHIP OPERATION SHIPBUILDING CARGO HANDLING

The National Publication Covering the Business of Transportation by Water

CLEVELAND FOUNDED 1878 NEW YORK



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SHIP OPERATION - SHIPBUILDING - CARGO HANDLING

Volume 65 **February, 1935** **Number 2**

Need New Efficient Ships to Meet Competition

BESET on all sides, from within and without, the American merchant marine is facing one of the most crucial periods in its long and varied history. But out of this ferment of activity, it is bound to emerge stronger and better fitted to carry on its proper function in the progress of a great nation.

The government in Washington, both executive and legislative, reflecting a strong and growing national sentiment, fully realizes the urgent necessity of an adequate merchant marine in the protection and development of our overseas trade and for national defense. Also, that such a merchant marine cannot be maintained without proper government encouragement and support.

The question is not one of good will or intent, but rather, first, that an effective and workable plan should be devised and, second, that there be no undue delay.

What is the rest of the world doing while we are trying to work out a program to present to congress? Quietly and effectively, a wise Japanese merchant marine policy has made it possible for its progressive, shrewd and energetic shipowners and operators to build up a fleet of modern economical and fast vessels which are so far ahead of our old obsolete and inefficient fleet that competition, on anything like an equal basis, is utterly impossible. A Japanese tanker having a speed of 18 knots recently cleared Los Angeles harbor with 84,000 barrels of crude oil for Japan. A fleet of economical super-freighters with a speed of 19 knots has been built within the last two years for a Japanese shipowner. Of 9000 tons deadweight these vessels are fitted with propelling machinery developing 7600 brake horsepower. They can cross the Pacific in less than 12 days. They can make the voyage from Yokohama, via the Panama canal, to New York in 25 days.

Passenger traffic between Pacific coast ports and Europe via the Panama canal during 1934 was 22 per cent greater than in 1933. British, French, German, Dutch, Danish, Swedish, and Norwegian lines operate 60 ships in this service for freight principally and incidently for passengers, providing four sailings a week, with not a single vessel flying the American flag.

At the opening of the current session of parliament, King George directed attention to the merchant marine in the following words:

"The condition of the shipping industry is receiving the anxious consideration of my ministers. The serious position of tramp shipping calls for early treatment, and you will be invited to consider a measure for providing temporary assistance to this section of the industry."

It will not be long before tramp shipping in Great Britain will receive very definite practical aid. The beneficiaries of this aid are called upon to "actively promote cooperation among shipowners in minimizing domestic competition, improving freight rates and conditions, and promoting, as against foreign subsidized competition, the fullest possible employment of British tramp shipping." Provision is also being made in Great Britain for scrapping and rebuilding or modernizing British cargo vessels.

In the meantime as of Dec. 31, 1934, Great Britain and Ireland are building 596,834 gross tons of merchant shipbuilding while we in the United States are building 20,103 gross tons. Since 1921, the two small ocean cargo vessels for the A. H. Bull Steamship Co. are the only ships of this type built in the United States. It is conservatively estimated, based on present tonnage of American vessels in foreign trade, without consideration of any increase in this fleet, that an annual construction program of at least 150,000 gross tons of sea-going merchant vessels is immediately required in order to continue to carry one-third of our trade in our own ships.

On the administration rests the responsibility for prompt and effective action.

EUROPEAN SHIPPING,

Improvement Noted in Many Quarters

BY FRANK C. BOWEN

THE review of the last quarter of 1934 is bound to include a general review of the year, and considerable headway is noted especially in British shipping and shipbuilding. Satisfactory progress has been made during the year in many sections, several others have held their own and in only a few is further depression to be observed. The promise of better times is now unmistakable, but the shipping industry and its allies are not by any means out of the woods yet and complete recovery is certain to be a long process.

World trade has been revived to approximately 1913 level, but there is still far too much tonnage afloat to cover it. This not only applies to the number of ships in the world but also to the greater carrying capacity of a large number of units. Until the supply is adjusted to the demand it will be impossible to say that shipping has fully recovered, but it is good to note that the progress is in that direction.

Subsidy for British Ships

Naturally one of the most important features of the quarter is the progress of the British subsidy scheme for tramps. The industry put its plans before the board of trade and these were accepted in principle, with the result that the measure has now passed the house of commons and will shortly be before the lords. It is fully realized that the £2,000,000 earmarked for the purpose is only a pill for the ailment, but it is hoped that it will be enough to permit the tramp section to turn the corner, for subsidies are still against British policy and would be avoided if possible. Many companies are past praying for and no reasonable financial help would be sufficient to save them, even if it were advisable, but there are many others which, with a certain measure of state assistance, ought to be able to hold their own against state-aided foreign competition.

There is still a considerable measure of opposition to the subsidy scheme on the ground that it does not include any reference to the seamen and their conditions, but the government scheme depends on the operation of the tramp advisory committee and there is little doubt that this body will be able to do far more good than any hard and fast law; it is an old truism that reform that comes from within is always the most satisfactory and the tramp steamer which saves money by running against the rules is just as much hated by the better class owner, who will be strongly represented on the committee, as the cheaply run foreign competitor.

Construction, Renovation Loans

In the discussion over the subsidy comparatively little attention has been given to the promise of government money on reasonable terms, although not as reasonable as those embodied in the Jones-White act, for the modernization of existing ships and the construction of up-to-date ones on condition that obsolete tonnage is scrapped at the same time. Whether this will be used principally for the construction of its new ships or the modernization of existing ones is an open question, but British shipping and shipbuilding interests have been very much impressed by the extraordinarily good modernization work done by the Dutch with their cargo liners running to South Africa and the East Indies. The Royal Mail Lines Ltd. has already modernized and greatly increased the speed of the two pioneer motor liners ASTURIAS and ALCANTARA by the installation of geared turbines and high pressure boilers, and the Blue Star line has also improved a number of its ships, both for the Australasian and South American services, by machinery alterations and the installation of the Maier form bow. Other companies have carried out minor improvements which have had good effect but a very much larger scale movement is expected with the government money.

New British Construction

There is a fair amount of new construction in Great Britain, although the revival of shipbuilding some months ago has not been maintained. The 10 magnificent new motorships designed for the New Zealand meat service are coming into commission and are obviously particularly satisfactory vessels. Surprise has been caused by the Clan Line laying down a 16-knot cargo carrier for its Australian service, not only driven by steam, with Bauer-Wach exhaust turbines, but normally burning coal under the boilers. The two big ships building for the Australian trade, ORION for the Orient line and STRATHMORE for the P. & O., are progressing steadily, the former having been launched by wireless by the Duke of Gloucester during his Australian tour. Quite a number of tankers are under construction but practically all of these are for the oil companies themselves and it is difficult to say when the building of tramp tankers will be revived. It is an old proverb in the British shipbuilding world that the prosperity of the industry depends on the construction of cargo tonnage on the North East coast and although the yards there are still far from busy there has been a welcome revival of orders during the last few months. At the same time it should be noticed that the amount of British shipyard work on foreign account is small.

The Canadian Pacific Co.'s project for a sister ship to the EMPRESS OF BRITAIN is still very much in the air but it is not by any means abandoned and nobody will be surprised to see the order placed at any time, probably with John Browns, Clydebank, although other yards have hopes.

Held Up Work Resumed

It is interesting to note that ships which have been held up on the slips for a long period, some of them for three to four years, are now being completed. Many of them have changed hands while they have been on the slips, the companies originally ordering them having collapsed or not being in a position to complete their construction, but others have been restarted for their original owners.

Sir Joseph Isherwood's arcform hull has made its reputation and his courage in speculating on the construction of three ships has paid. He was prepared to go further and lay down ten, but there seems to be no need for this, for orders for tank steamers, built on the principle, are coming in from abroad. And when British owners are in a position to use government money for new construction it is expected that quite a batch of arcform ships will be laid down. Similarly the various inventions which have recently been put on the market for the improvement of the steam machinery of cargo vessels,

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A quarterly review of European shipping. The second, third and fourth articles for this year will appear in the May, August, and November issues respectively.

Trend of Trade and Shipping in British Isles

	September	October	November	Eleven months ended Nov. 30 1934	1933
Total entrances of cargo ships into British ports:					
Number of vessels	4,251	4.164	3,837	45,615	43,794
Tons	5,419,648	5,522,647	5,171,882	57,594,960	55,522,290
Tonnage from Atlantic coast of North America	1,109,476 (20.5%)	1,952,463 (19.9%)	948,318 (18.4%)	10,165,810 (17.7%)	10,604,531 (19.3%)
Total clearances from British ports:					
Number of vessels	4,214	4,259	4,155	45,736	45,330
Tons	4,924,894	4,918,696	4,691,807	51,715,762	51,396,586
Tonnage going to Atlantic coast of North America	972,694 (19.8%)	934,055 (19%)	732,355 (15.7%)	9,161,259 (17.7%)	9,517,617 (18.5%)
Total value of goods:					
Exported	£37,207,084	£40,749,213	£40,133,554	£409,556,317	£382,096,315
Imported	£57,738,498	£68,993,589	£64,687,347	£669,603,030	£612,851,465
Exports of coal:					
Tons	3,541,396	3,630,411	3,317,900	36,585,020	36,018,444
Value	£2,847,137	£2,998,986	£2,711,732	£29,361,220	£29,009,462
Tonnage shipped for use of steamers:	1,103,625	1,123,162	1,151,857	12,389,594	12,304,768

obtaining far greater running economy without greater overhead costs, have also fully justified themselves on service and here again a number of orders are expected.

Coasting Trade Vessels

In Britain the coasting trade has made considerable progress although its path is still uphill. The owners have realized that it is hopeless to wait for the various small ports to be improved to their pre-war standard, when they could accommodate the steam coasters of comparatively deep draft of which the country possesses so many, and are now building quite a number of light draft motor coasters, improving on the Dutch design and regaining a lot of the purely coasting trade which was in Dutch and German hands not long ago. A lot of work still has to be done but a good beginning has been made. In the coal trade from the North East coast to London, principally for public utility works, there has been an appreciable improvement and some splendid colliers are now being built which have been designed and constructed as carefully as ocean liners.

In the shipbreaking business there has been some lull, again waiting for the effects of the government's scheme, but prices are still good and still showing a tendency to rise. A number of big liners have been sold to Japanese scrappers but they are now content to take delivery in European waters and shoulder the expense of taking the ships out to the East, whereas formerly delivery always had to be made in Japan. Some old British ships are also going to Italy for demolition but on the other hand the British yards are still buying a number of ships on the Continent and cargoes of scrap steel are still coming into the country from the United States.

The foundering of a number of British ocean-going tramps has caused serious anxiety in the country as to whether the new load line regulations are justified with ships which were designed for the old ones. On the other hand there are many who consider that the load line is a secondary cause of trouble, and that more attention ought to be paid to hatch covers and steering gear.

Cunard White Star Line

The Cunard White Star combination, formed under pressure from the government before it would grant any aid for the construction of the QUEEN MARY, has got well into its stride and has carried out its rationalization policy, both in scrapping surplus ships and the retirement of surplus officers and officials. In this there has been no doubt that the Cunard Co. is the senior partner of the concern. It has also carried out a number of changes in its services, of which perhaps the most important is the transfer to the London-Southampton-New York service of the successful cabin motorships BRITANNIC and GEORGIC.

In connection with the Cunard White Star rationalization Major Frank Bustard, who was formerly one of the principal passenger men in the White Star Co., made plans to purchase surplus British flag ships of the International Mercantile Marine and to run them on a low cost passenger service from the Continent and England to New York. When these plans were completed, however, the treasury stepped in with its prohibition of the export of capital. Its justification was that the new service would torpedo its careful schemes for abolishing inter-British competition by the formation of the Cunard White Star line. It must be added that this policy is not by any means universally accepted in the shipping world and considerable indignation and fear has been expressed that the government is creating monopolies for the particular companies which it has elected to help.

Companies Being Liquidated

The unravelling of the affairs of the Kylsant group continues, and in the case of the Royal Mail Steam Packet Co. and Elder Dempster & Co. —not to be mistaken with the Royal Mail lines and Elder Dempster lines which are carrying on the services— the ordinary capital is acknowledged to have been lost and two companies

(*Continued on Page* 40)

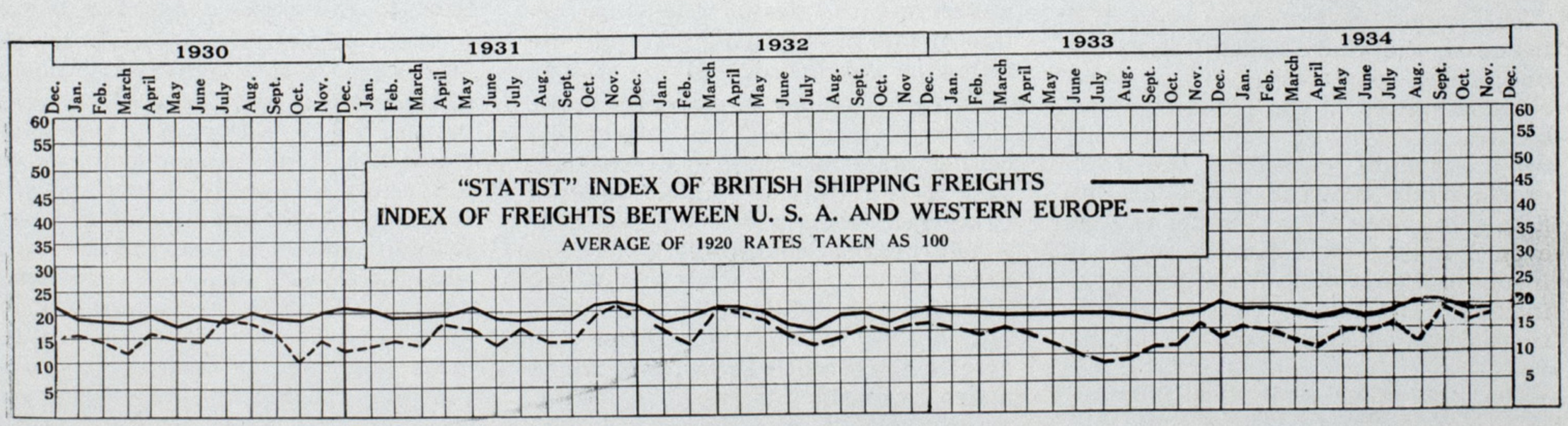


Diagram showing the fluctuation of ocean freight rates for four years and eleven months

STEAMSHIP CABIN,

New Type, Designed by Italian Engineers

BY A. H. JANSSON

AT THE international fair held at Milan, Italy, last year, three companies of that city, S. A. Lavorazione Leghe Leggere, Societe del Linoleum, and S. A. "L'Infrangibile," cooperated in exhibiting a ship's cabin or stateroom to meet the requirements, as far as possible, of fireproof construction. The design was prepared by Ubaldo Magnani, engineer and Paolo Masera, architect, both of Milan. The construction was carried out by E. Monti, engineer-architect of Milan. The accompanying illustrations, all views of the same cabin, show the remarkably attractive results achieved, and the apparently practical realization of the objective in meeting the various requirements of a construction of this kind.

It is interesting to note that this proposal and practical exhibit of a ship's stateroom, possessing exceptional fire resisting properties, appeared several months before the MORRO CASTLE disaster. Numerous major fires on shipboard prior to this last and most serious catastrophe had already emphasized the great necessity of a change in design and construction of passenger quarters, both for increased safety of life and to reduce the fire risks to make full insurance coverage possible at reasonable rates.

Increased Fire Risk

After the disastrous fires on the French passenger liners GEORGES PHILIPPAR and the L'ATLANTIQUE, such justified alarm took place in the insurance line that it was impossible to obtain re-insurance on the REX and the CONTE DI SAVOIA through the usual marine insurance channels. It was necessary, therefore, for the Italian government to underwrite a considerable part of the fire risk on these vessels.

A number of principles were followed in the study which led to the design and construction of the stateroom exhibited at the Milan fair and illustrated herewith. Incombustibility was sought by making the walls of materials which do not allow the flames to spread to adjoining cabins, even if these walls are charred. Heat insulation and noise damping were included, the latter, both in regard to noises coming from adjoining cabins and those produced by the walls due to elastic deformations of the structure. It was necessary to consider the weight of the partitions, and they are not heavier than the usual type of wood or composition construction. It was considered necessary that the construction should be rust resisting to sea air. A proper space easily accessible had to be arranged for electric lines and piping. Due to the effect of vibration, and expansion caused by heat, a sufficient elasticity of construction had to be provided. It was also necessary for proper hygiene to facilitate washing and disinfecting. The last and an important consideration was to arrange the design and construction so that it could be readily assembled and fitted in place on board ship.

Description of the Stateroom

The panels for the walls are made up of two hard peraluman alloy sheets, 0.7 millimeters thick with an ultimate tensile strength of R = 36 at 42 kilograms per square millimeter, and an elongation of A = 2 at 5 per cent. These sheets are glued on the two faces of a slab of cel-bes, a fireproof insulated material, 12 millimeters thick. A sheet of linoleum is then applied on the surface of this panel to replace tapestry or painting of the walls.

The chief characteristics of the insulating material used are as follows: Co-efficient of inside heat conduction at normal temperature 0.040; penetration of sound through a slab 12 millimeters thick, 37 per cent; anti-vibrant; does not rot and is not attacked by vermin and insects; apparent specific weight, 0.27 kilograms.

Taking up the various principles underlying the design and construction of this fire resisting material, the following conclusions may be stated:

Incombustibility is guaranteed not only by the fireproof properties of the cel-bes material but also by the fact that it is rigidly contained between two metal sheets whose melting point is 650 degrees centigrade (1170 degrees Fahr.). It is well established that linoleum, while it will char, will not spread combustion. After the fires to the French liners, mentioned above, experiments were made at Bligny and it was discovered that contrary to other materials linoleum floorings behaved like incombustible material in case of fire. Another factor adding to the incombustibility of the construction is the high heat conductivity of the aluminum. This prevents the concentration of temperature at any point of the panel.

Heat insulation is found to be high on account of the low heat conductivity of cel-bes and the high co-efficient of reflection of radiant heat of the aluminum.

The sound damping properties of the walls, made up of two panels as described above, at a pitch of 50 millimeters, will correspond to an average sound penetration of less than 13.7 per cent.

As to the question of lightness, the complete panels weigh about 8.8 kilograms per square meter.

The peraluman alloy has been specially prepared for the purpose of making it proof against corrosion by seawater. The cel-bes is waterproof when it is properly treated and cannot absorb dampness due to condensation.

In addition to floorings, the use of linoleum has been extended to covering for the inside and outside of furniture, doors, walls, and ceilings. Linoleum of three different types have been used; Grandinlaid for flooring, and Jaspe' and Copertina for walls, furniture, doors and ceilings.

Arrangement of Construction

The principal frame of the cabin walls is made up of a series of stanchions each one formed by two special sections facing each other, with an interspace of about 8 millimeters. These stanchions are made of pressed peraluman alloy. They are fixed to the decks above and below.

Wall panels are secured to the stanchions with staybolts by means of special sections, also made of peraluman, which make up a secondary frame. From the foregoing it is clear that the structure is elastic and will respond to the working of the ship without danger of cracking the walls and without annoying creaking sound. War vessels particularly require elastic structures since they are more liable to the causes tending to produce cracks in the walls and creaking.

The weight of a double wall made

The information upon which this article is based and the photographs were received from Paolo Masera, architect, Milan, Italy.

as described above is about 28 to 30 kilograms per square meter.

It is not claimed that a perfect solution has been achieved in the design and construction of this stateroom. An attempt, however, has been made to realize practically an idea representing something new to meet modern technical requirements both for safety and appearance for passenger accommodations on board ship. It would be necessary to determine in practice any difficulties that may arise in the installation on board ship due to the irregularity of the spaces available for accommodations. It is to be hoped that the proposed type of construction will be received and studied with an open mind by naval architects and the shipbuilding industry.

Ideal Requirements Noted

Sir Westcott Abell, the well known English naval architect, in an article in *Shipping World*, Aug. 16 and 22, 1933, said: "For staterooms, requirements are noise and heat insulation, a certain amount of strength, movability and finish. Obviously, sheet metal of any sort by itself cannot fulfill all these requirements, but it is highly probable that a new type of bulkhead lighter and more efficient than plywood can be made, using two metal panels with an insulating medium between. The first cost will probably be higher, the results superior, and the present disadvantage of creaking and fire risks will be eliminated. Passengers, moreover, would sleep better, secure from the danger of conflagration and undisturbed by frame noises."

There can be no doubt that the design and construction of the stateroom, described and illustrated in this article and exhibited in April last year at the Fifteenth Sample Fair at Milan is a contribution of considerable value in arriving at a satisfactory new type of construction for passenger accommodations on shipboard which will meet the urgent demands of greater safety for life and property at sea against the hazards of fire. The sample stateroom was completely constructed of materials produced by Italian industry.

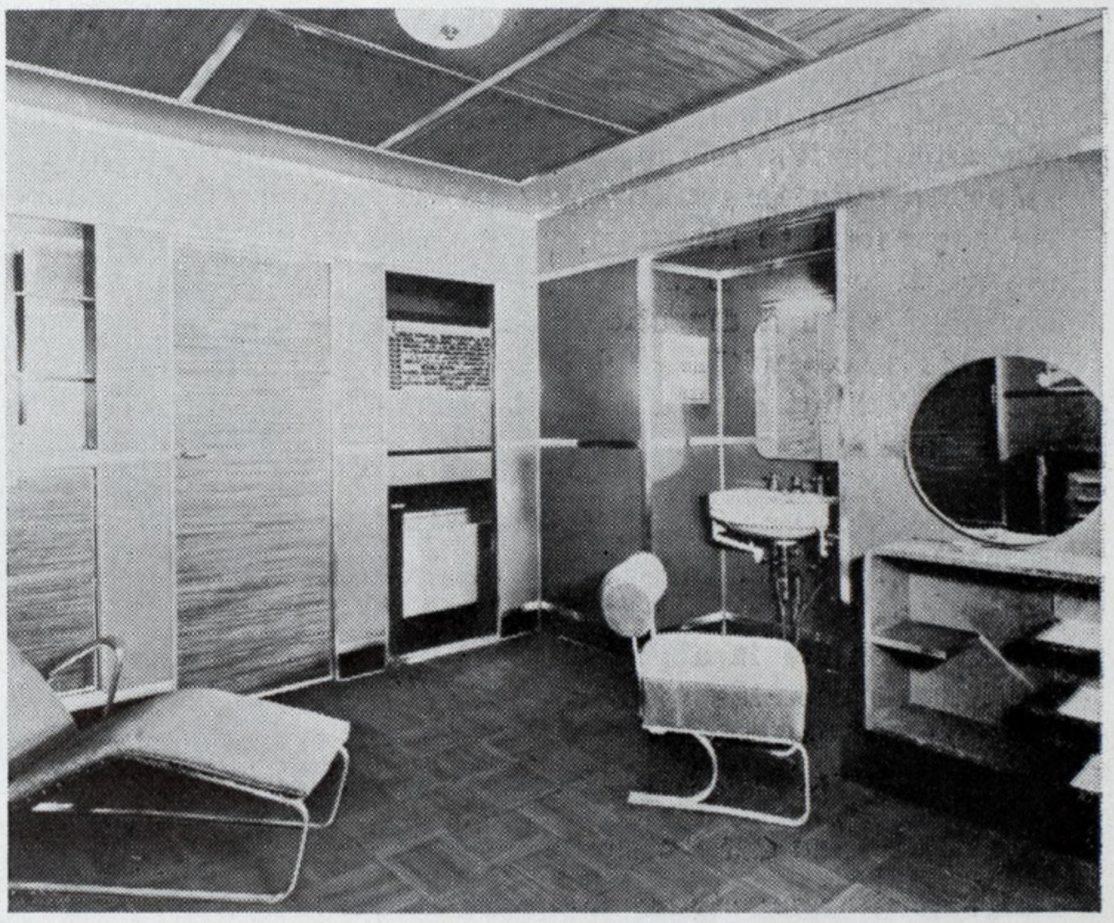
Improvement at Baltimore Port Traffic Increases

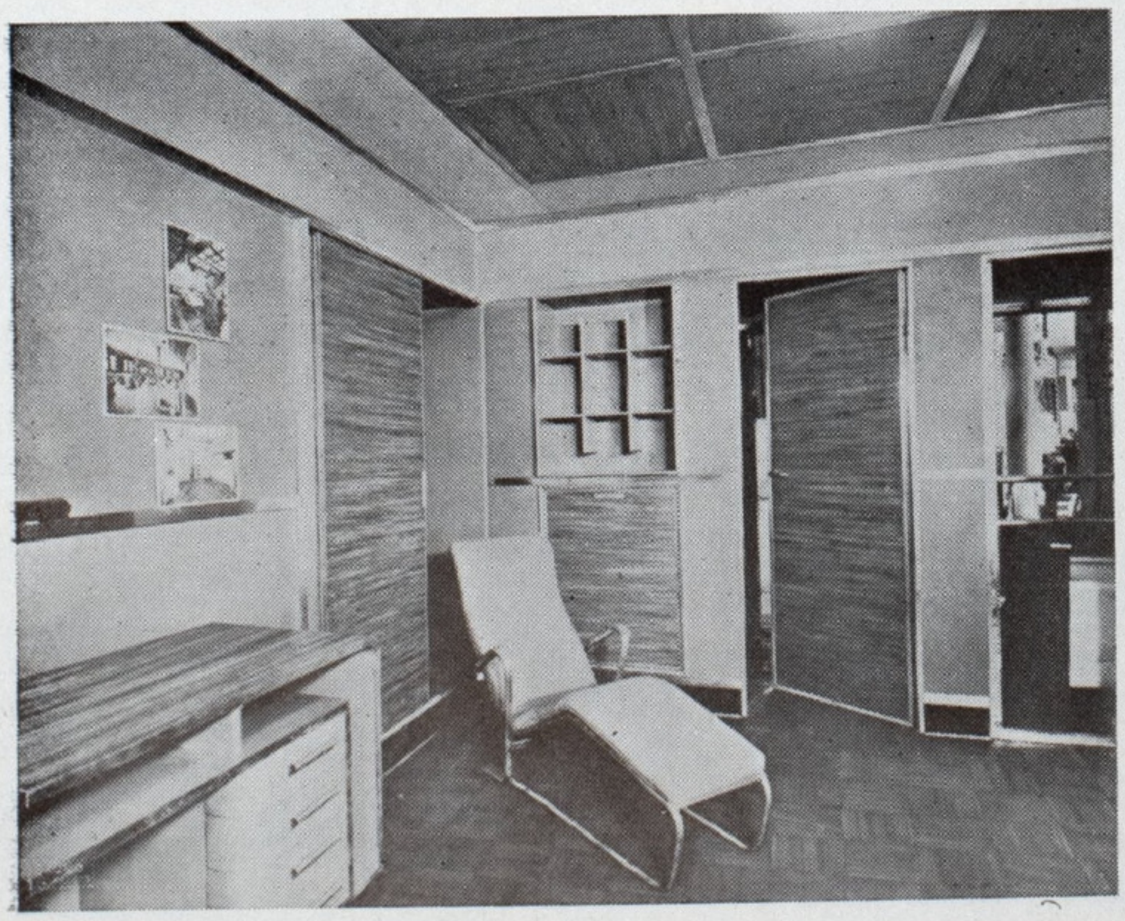
The annual report of the Export and Import bureau, Baltimore, on the activities of the port of Baltimore during 1934, will give a somewhat optimistic picture of conditions in shipping and waterborne trade. Though many serious obstacles to commerce still exist, conditions on the whole are considerably better than at the end of 1933, and there is promise of sound progress during 1935.

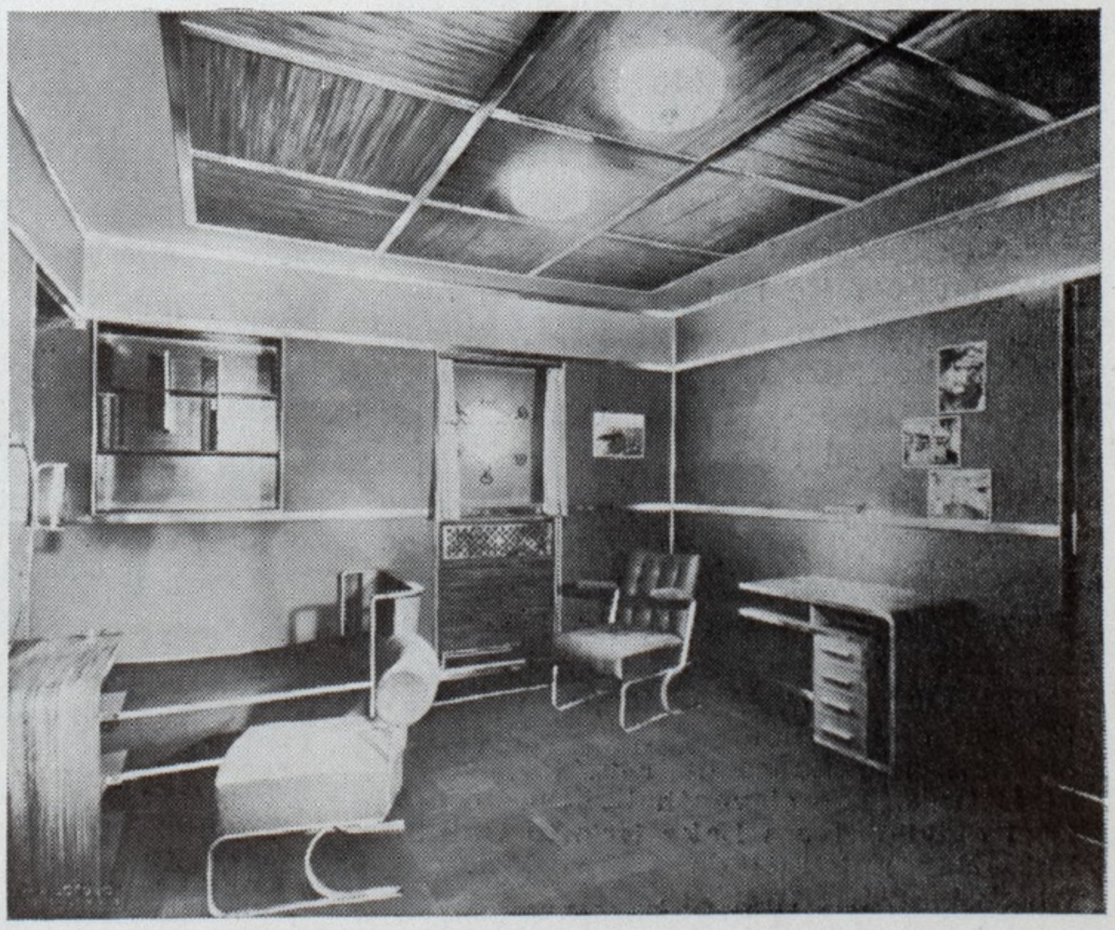
Baltimore port business for 1934 was about 25 per cent ahead of 1933, with considerable improvement in the volume and variety of exports, heavier import tonnages of both free and dutiable goods, strengthened steamship service, and continued activity in the domestic shipping trades.

Such 1934 factors as the new appraisers stores building, final approval of the Chesapeake & Delaware canal, some improvements in competitive relationships, and more liberal federal policies for foreign trade expansion should benefit traffic in 1935.

NEW type of steamship cabin developed by Italian engineers and exhibited at the Milan Fair. Flooring is of dark brown inlaid linoleum, laid on a medium thickness of cel-bas, an insulated material. The furniture is lined outside in green Jaspe linoleum and inside with pearl white plain linoleum. The wall socle is black plain linoleum. The walls for a height of 2 meters are light green linoleum. The upper border and the stripe on the ceiling are in pearl white linoleum. The ceiling is in green Jaspe linoleum in panels with inverted stripes. The moldings outlining wall and ceiling panels are in peraluman alloy. The bed and chairs are all anti-corrodal aluminum. The plaited stuffs are in two green tones. Doors, panels of thermo switchboard, etc., lined with green Jaspe linoleum.







NAVIGATIONAL AIDS,

Improved Signals and Marks Installed

BY F. P. DILLON*

THE lighthouse service of the department of commerce has recently completed an elaborate revision and modernization of aids to navigation in Duluth-Superior harbor on Lake Superior. Before going into details in connection with the reconstruction of the system of navigational signals and marks in this harbor, let us consider briefly the value of general aids to navigation on Lake Superior as exemplified by the voyage of a 600-foot bulk freighter after passing through the locks at Sault Ste. Marie, bound for Duluth.

Shortly after the big freighter has passed Whitefish Point Light station it is not unusual for a "pea soup" fog to blot out the light and every other visible evidence of the surroundings.

It is in circumstances like these that the radio beacons, installed at Manitou, Passage Island, Eagle Harbor and Devil's Island, serve as invaluable aids in making it possible for the vessel to maintain her schedule with complete safety if she is equipped with a direction finder and if it is used with intelligence and care. Without seeing a light or any other landmark all the way up Lake Superior the skipper is able to continue with confidence at his regular speed as he can and does take bearings from the various radio beacons from which he is able to determine with accuracy his position on the course until he hears the signals from the Duluth radio beacon dead ahead.

Distance Off Determined

When the fog signal is heard the speed is checked down and since this signal is synchronized with the radio beacon, it is possible to determine accurately the distance off (within 10 per cent) by the simple device of noting the time of the fog signal. For practical navigation, as sound travels about one mile in five seconds, having noted the elapsed interval between the known time of sending and hearing the fog signal, the distance is established at once.

Very often, peculiarly enough, the fog lifts sufficiently for entering Duluth harbor without difficulty. Then guided by the flashing lights of the buoys and the steady lights of the ranges, the vessel confidently moves around Rice point and finally comes alongside of the great ore chutes, and without ceremony begins the business of loading from nine to twelve thousand tons of ore. Before the break of day she has disappeared downbound on her schedule, guided by the signals of the lighthouse service.

New Lights and Marks

In August, 1933, the sum of $90,500 was allotted from public works appropriations for the lighthouse service, department of commerce, for the revision of aids to navigation. Duluth-Superior harbor and approaches.

New light signals and marks at Duluth-Superior harbor. Upper—Electric range light, St. Louis river. Lower—Rice Point Light No. 6

Plans were made by the superintendent of lighthouses, Detroit, which included a low power radiobeacon at Superior Entry Light station.

A variety of construction work was involved, embracing design and erection of steel towers on shore and on marine foundations, equipping towers with tank houses, pole line and cable connections and various types of lanterns to suit conditions.

Steel buoys, complete with lighting equipment, were provided, including acetylene accumulators. The rearrangement and improvement of the entire buoyage system was effected, including all other aids to navigation. Because ice conditions at times make buoy marking unreliable, permanent sets of range lights were established for service throughout the season.

The navigation season for Duluth-Superior harbor averages about eight months. Fog or thick weather is often encountered. Shipping is characterized by bulk cargo carriers and package freighters, many vessels being about 600 feet long. Vessel freight receipts consist mainly of coal. Such materials as limestone, slag, coke, oils, steel products, automobiles and miscellaneous freight are of much less tonnage. Of the freight shipped, iron ore and wheat rank highest in tonnage, and in much less quantity are such items as flour, grains, dairy products, scrap iron and wool.

Confusion Eliminated

From 2000 to 12,000 vessels have entered and departed from these harbors in a single season in late years. These are busy ports even in depression times. The vessels are of modern type designed to be loaded and unloaded quickly. The ore and coal docks have loading and unloading equipment which is the marvel of the shipping world. The vessels move in and out of the ports continuously, day and night, in all kinds of weather, on schedule, and often dock without the assistance of tugs. Delays are thus cut to a minimum. The movement of this vessel traffic imposes heavy responsibilities on the masters of the vessels and on the lighthouse service, whose duty it is to establish and maintain the marks and signals for safe navigation of the waterways.

To safeguard the traffic in Duluth-Superior harbor, the boundaries of

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The author, F. P. Dillon, is superintendent of lighthouses, in charge of the eleventh lighthouse district, with office at Detroit. The eleventh lighthouse district extends from Lake Erie to Duluth, but does not include Lake Michigan, which is in the twelfth district.

the deep water areas and the courses to be followed by vessels are marked by buoys, ranges and passing aids to navigation, to avoid so far as practicable every possibility of confusion. These aids to navigation have been standardized in type, shape, form, light characteristics, to meet the great variety of conditions found for traffic guides and signals in marine work. On account of the variety of conditions encountered it is rather difficult to convey the idea that aids to navigation are in fact a completely unified system.

For many years wood pile dolphins with post lights using kerosene oil served in many places to delineate the edges of the channels and the ranges in these harbors and approaches. At the opening of navigation each season, numbers of these had to be rebuilt, having been displaced or destroyed by ice action. They were susceptible to damage from many causes. The oil lights required frequent attendance. These lights have all been replaced by permanent structures.

The foundation conditions for the new structures made interesting engineering studies. One of the accompanying illustrations shows one of the foundations on a marine site with steel skeleton superstructure, solid daymark and electric current lighting equipment. The foundation is in a round form for best resistance to ice action, with sufficient mass to remain stable. Steel sheet piling, wood bearing piles, stone filling and mass concrete are used in the foundation.

Thirty-eight Lighted Buoys

Thirty-eight lighted buoys with steel bodies and skeleton steel towers were provided. These buoys are six feet in diameter and eighteen feet long over-all. Several spare buoys are required as a reserve in case of damage to buoys on station. One of these buoys is shown in an accompanying illustration on being lifted by the

Standard type of lighted buoys, 6 feet in diameter by 18 feet long, being unloaded at Detroit depot wharf from tender Marigold

lighthouse tender, which, among other duties, establishes, moves, or replaces all buoys. Acetylene cylinders of a commercial type are used in tank pockets in these buoys.

About 58 special steel third class nun and can buoys are used. Third class wood spars are confined mostly to the upper river and are used also for winter markers for lighted and unlighted buoys. Wood spars are being replaced by special steel buoys where ice conditions permit, as they make more distinctive marks.

Although the subject is too great for detailed account in this article, some exposition should be made indicating the development of the standardization of aids to navigation and selection of lighting equipment. Standardization comes about through experience and subsequent design. For floating aids design depends on such factors as depth of water, exposure to wind and wave action, which dictate the diameter, length, draft, freeboard and stability and determine the proper type, size, weight, of such appendages as ballast, chains, shackles, sinkers, etc.

The lighthouse service in its regular buoyage system employs only three paint colors, red, black, white and combinations of black and red and black and white. These are the only colors used on all the signals, fixed and floating, in Duluth-Superior harbor. Two shapes are used where possible on buoys, conical and cylindrical.

Fixed lights in most cases would be preferable for range lights and these are employed as shown in the upper view on page 14, where commercial current has been made available through connecting pole lines and cable. Flashing lights are used on lighted buoys to conserve gas. Only three light colors are used on buoys, red, green and white. No other light colors have yet been found practicable or necessary. Of course all lighting equipment has to be designed and selected as to candlepower, divergence, focal height, and with characteristics which will be most distinctive and which will not be confused in a background of city lights. The lights on fixed structures generally carry distinctive daymarks as to shape and color, selected for visibility and so as to be readily distinguishable.

There are of necessity continual changes in aids to navigation, especially in the floating aids. So that the masters and shipping interests may be authoritatively informed about the department of commerce lighthouse service aids to navigation, Great Lakes *Notices to Mariners*, published weekly in Detroit, are mailed without charge direct to them. In addition, the lighthouse service representative in Duluth issues local notices covering items in regard to aids to navigation of interest to vessels calling at Duluth-Superior harbor. On account of the active dredging program in progress, these local notices for this region have been sent out to shipping interests almost daily the past season.

Deepening the Harbor

The United States engineers' dredging program in Duluth-Superior harbor in progress contemplates deepening almost the entire area besides widening many of the channels. This dredging program gave impetus to the permanent improvements to the aids to navigation. The old system of aids had developed to its former stage through some fifty or more years. The new system bids fair to remain in effect for many more years without great changes as indicated by the present outlook. The lights are either automatic in type, or connected with commercial current. The structures and buoys are designed for long life.

Front range light at Rice Point

Front range light, South Channel

A TRADE POLICY

Appropriate for a Great Creditor Nation

BY G. S. CLARK

SO MANY of us have listened to the spellbinder on the street corner; many others have studied or read the teachings of our foremost economists so often that we are in a haze. We wonder what it is all about. These gentlemen have been furnishing us with bimetalism, depreciated currency, international credits, etc., so much that we wonder whether we will ever get back to the time when the "man on the street" will understand just what they are driving at, if anything.

We all are familiar with the terms "debit" and "credit" and, as I understand trade and banking, those are all of the terms necessary for use in explaining our dealings with our friends and neighbors. Of course, there has to be a token to use as a means to balance debits and credits, as goods and labor are not flexible enough.

Token Lacks Uniformity

Unfortunately the world has not adopted a uniform token. We have some nations with gold alone as the token; others have a mixture of gold and silver; a few have silver alone, and one or two have nothing to back up their money. This lack of uniformity has, no doubt, influenced and fixed the value of labor. It has influenced and fixed the value of raw materials both mined and grown. World trade on this account has never been on an equal value balance.

As the world has developed from the time of Adam and Eve some nations have taken advantage of this lack of stability and have amassed such wealth represented by precious metals, jewels and securities that they were for a long time, and in some cases still are, in a favorable credit condition. They have been able to live upon the labors of other peoples by, what we would call, a scientific adjustment of their exports and imports of goods and tokens.

I am not looking for an economical argument. Nowadays I can get enough of that at home. I would like to know, however, whether or not we might profit by the use of formulas worked out and applied by creditor nations in the past. Who were they and how did they operate?

England, as we all know, was, for a long time prior to the World war, the chief creditor nation. France and Germany were also in a major position in credit standing. On the opposite page stood the United States as the largest debtor. Ever since the birth of this democracy we have led all other countries in paying "interest" in one form or another, without appearing to reduce the amount of the "mortgage". Of course, it was all legitimate. We had to borrow to build.

We Are Debtor Minded

During all this time we, like all other debt bearing examples, became debtor minded. We built our financial operations, our industrial relations, and even our home life with these financial obligations in mind. We must always save to pay the interest; we must rush, rush, rush to make the necessary profit. We must produce and discover our raw materials locally to manufacture our goods for export. We must bleed our reserves. All of this we had to do for the necessary credits to balance our foreign obligations.

It was imperative that we have the balance of trade in our favor. Our government stressed balance of trade with great wisdom. Our industrialists "hopped" all over the globe inciting the cheer leaders of American goods, and with good results. We managed to keep just ahead of the landlord's agent—but bear in mind that we were continually stripping our reserves to do it.

It is common sense that a debtor cannot pay his debts unless he can show a profit. A nation, which is a combination of agents producing raw materials and manufactured goods, cannot pay the interest or the principal of its indebtedness unless it shows a profit, or, in other words has the balance of trade in its favor.

Actions of Creditor Nations

The question naturally arises as to what policy England, France, Germany and the other creditor nations pursued when they were in the favorable credit position. What was their method of handling the balance of trade? How did they handle their international transactions when they were in the landlord class? How did they vary and spread their chores so that they could keep their own people busy, active and happy and at the same time allow their debtors enough to pay their obligations?

In order to confine and limit this article so that the monotony of this kind of reading matter is partially eliminated, I am going to use England as the yardstick or example of how a creditor nation must properly handle international trade.

Le us now look at the United States-United Kingdom trade ledger. We show the imports from the United States to the United Kingdom and exports from the United Kingdom to the United States as follows:

1905 to and Including 1912

Year	Exports	Imports
1905	$175,811,918	$523,396,852
1906	210,029,487	583,090,123
1907	246,112,047	607,783,255
1908	190,355,475	580,663,522
1909	208,612,758	514,627,375
1910	272,029,772	506,552,891
1911	261,289,106	576,613,974
1912	272,940,700	564,472,186

You will note how uniform and regular the balance of trade remained in our favor. You will see the voting power the United Kingdom had in directing in which ships bottoms this lading should move. Is it any wonder that they should have a large merchant marine?

Out of their ships' slings there were unloaded on the piers and bulkheads of Liverpool, London, Belfast, Dublin, Edinburgh and Glasgow, such articles as cotton, wool, wheat, automobiles, iron, lead, etc.—even coal was imported for Newcastle.

Most of these raw materials went to the centers of their industrial zones for refashioning into articles for export. England made but a small part of her luxuries. She manufactured but few of her dolls and tops. She controlled this balance by her very liberal tariff wall. What few of nature's gifts she was endowed with she conserved. As she moved up to her period of affluence she had learned to govern her buying and selling so that she lived upon the fat of others, and the practice has proved that it was wise.

U. S. Becomes Creditor Nation

We in the United States, with the help of the World war, changed our financial status during the years 1914 to 1918. We changed from an extreme debtor nation to an extreme creditor nation, as gaged by past standards. We dropped our "interest" payments—we had paid off the "mortgage". In addition to our al-

ready large credits we loaned right and left, and many of the loans were at a high rate of interest. We bought in other peoples' securities. We aided in developing foreign railroads and power facilities and took their bonds and stocks in payment.

Our government continued to stress a favorable balance of trade. Our industrialists still "hopped" all over the globe renewing their exhortations to the cheer leaders of American goods. We all were, and still are, "favorable balance of tradists".

Now, during all this time (and I claim that sixteen years is a long time in this fast moving world) we were sending our collecting agents around for the interest due us. We didn't and haven't given any consideration as to what the other fellow was or is going to use to pay us with.

Of course, no one could expect us to change our business outlook in a day, but it is sixteen years since we changed our debit and credit position and it is time that we change our outlook upon international life. It is time that we adopted a position which will satisfy our own people and at the same time allow our debtors to pay their interest and principal.

The days of United States leadership in the production of wheat, cotton and beef are passed. We are no longer the only land that has coal, iron, petroleum and copper deposits. Ours has been bled and badly depleted. As proof of this you will note our gradual trend to the synthetic.

Waste of Natural Resources

Our farm lands are also in a sad state of disrepair. Our western plains do not need forestation, they need a rest. They need a recess so that the natural water table will prepare itself for its battle against the cycles of drought. They need a vacation so that the natural plant foods can be restored without intensive fertilization. It is not intended or suggested that we should shut down all of our agricultural operations. A sane and scientific zoning of farm lands would help. You cannot graze cattle over land that has fattened mutton, and sheep will not get fat when there are twice as many of them as there should be on a section of land. We are spending millions of dollars now repairing the extreme erosions of our western states that was caused by this lack of judgment.

What Our Policy Should Be

We can always stop this depletion of our natural resources. Iron, while under ground, does not rot away nor is it easily stolen. Coal is safe from all destructive agents when it is still unmined. Petroleum can be neither lost nor pilfered when it still remains in its natural sands. These resources are best protected when left in the uatural beds where they were placed in the past ages.

As you may appreciate, it would be a book long article if we attempted to cover all of the raw materials, etc., necessary to correct the trade picture. You, as readers and thinkers, could pick out many examples and could process them handily. If you will allow me, I will select the simplest for myself and the one to which I have given the most thought. That is petroleum.

There should be no argument to the fact that we are well along towards bleeding our petroleum sands dry. Pennsylvania, the cradle of the oil industry, and, as you might say, the birthplace of petroleum, is an example of how we have ruthlessly milked our birthright. The other fields are gradually following Pennsylvania's example and if this process goes on without a scientific check we will be dependent upon others for our fuels, lubricants and their by-products. In time of war we will be out of luck.

If the railroads can be regulated, petroleum can be regulated. If banks can be controlled, petroleum can be controlled. If shops and mills can be shut down, petroleum can be shut off. It may have to be a decisive maneuver or it can be a gradual operation. It may lead to an absolute shut off or to a regulated release.

With whatever gesture you make, you will have to purchase your oil from outside sources. From sources owned by those who owe us, or from sources who trade extensively with those who owe us. No matter how it is arranged the transfer of credits will take care of our creditors. How will this change over in our trading affect our own people?

Merchant Marine Will Expand

Being the purchaser we can direct the routing of the shipments. We can order our cargoes delivered by our own ships' bottoms. The oil companies now operating their own fleets will have but a small problem. The independents who are already purchasing their goods will be taken care of by the independent carriers.

Of course, we will have to increase our tanker tonnage. It is necessary that we should increase our tanker tonnage even if we do not purchase our oils from other countries. In time of war the tankers will play one of the most prominent parts. The next war will be fought entirely with motorized arms, and petroleum and its by-products will be needed immediately. This change should demand and give us one of the best of tanker fleets. A few orders for real ocean-going oil carriers at this time will not hurt the feelings of our shipyards.

Labor employed in our oil fields is small in numbers. With the shut down of the wells this labor would be released. That is, all except the few needed for watchmen purposes. This labor could be easily absorbed in working sulphur deposits which are associated with worked out wells, or which were discovered in association with gas wells. What few would be left could be used in the operation of the additions to our petroleum fleet. At least, the numbers could be balanced off so that unemployment would not be increased.

The life and employment at the industrial plants where petroleum is refined would go on just as if no arrangement had been made. We would still be in a position to control the price of crude oil, as our unmined oil could always be used as a threat against holdups.

Of course, some arrangement or allowance will have to be made to protect the investment of those owning flowing wells. No allowance should be made for anything other than the expense for the actual drilling itself. Oil that has not been mined will always be just as much of an asset as if it had been allowed to flow into surface storage. No damage or loss has been created and no one has suffered if no one is allowed to drain adjacent holdings.

Strengthen Our Maritime Position

You can create other examples for use as a means for our people to use in the collection of our debts. You can summarize these items into a picture of the whole trade problem. You can see how it was possible for England to develop her large merchant marine.

It is going to require education and it is going to require a lot of patience for this change in our trade life to be made, but you have to make it, unless you are willing and prepared to write off these debts by direct action or by the schoolboy method of a bilious currency. If you are going to cancel these debts you will ultimately have to burn up or eat a lot of liberty bonds which were issued to back up these loans. With a little more importation of goods we will have more to say as to who will rule the seven seas; with an increase in imports, and with the business that we can then direct, we can reduce our subsidies and ignore the secretary of agriculture. What about it?

Matson Not to Build Liner

In the January issue of MARINE REVIEW an unconfirmed report was published to the effect that the Matson Navigation Co. was considering the construction of another 23-knot liner for operation in its California-Australasian trade. Definite word has now been received from W. P. Roth, president of the Matson Navigation Co., that no additional construction of this character is anticipated at the present time.

Canvas Gear on Shipboard, Use and Maintenance

By Capt. J. G. Bisset*

THERE is a good deal more canvas gear on board a modern vessel than would appear at first sight. The biggest item is probably tarpaulins, and it may surprise many to know that a ship of the LEVIATHAN class carries as many as 100 tarpaulins, measuring from 18 feet to 25 feet square each. The law demands three tarpaulins over a cargo hatch, but vessels of the LEVIATHAN class have hatchways running up five or six decks through passenger quarters, and these must have a clean tarpaulin on each deck and three on the weather deck of all.

In passenger and cargo vessels, the plain canvas tarpaulin is the most suitable, and should have a life of four to five years if carefully handled. For at least one year it is good for a top or outer cover, and for the remainder of its life as a second or third cover. Even then it is not finished for it may be cut up for a variety of uses, such as covering small bunker hatches, separation cloths in holds, aprons for leadsmen, and men using hoses for washing down, chafing pieces on boat covers, and for protecting decks when painting overhead etc.

How Tarpaulins are Damaged

Dropping iron cargo blocks on them and dragging splintered mooring wires and derrick guys across them are the chief causes of cuts and holes in tarpaulins, and the careful officer will rigidly forbid such practices.

In purely cargo carriers, tarpaulins treated with Stockholm tar are more serviceable, but not if the ship is trading to cold climates, where they become so stiff and unwieldly that it is almost impossible to fold them into the hatch cleats for battening down.

Speaking about tarred tarpaulins, the writer some years ago heard the following conversation between the mate of a cargo steamer and the marine superintendent, who was going through the store list for the ensuing voyage. "I see Mr. Smith, that you have ordered eight new tarpaulins" said the marine superintendent with his blue pencil poised over the offending items. "What's the big idea?". "Well sir," said the mate, "The goats eat them." "Goats! !" thundered the marine supertintendent "what are you talking about?". "Yes sir, we took 1500 goats on deck from Malta to Smyrna. We got held up by fog, and as there was no food on board for them, they ate the tarpaulins during the night." "In future" barked the marine superintendent "when you carry goats, give the tarpaulins a good coat of "Stockholm tar before they come on board." "Oh," said the mate, "we had done that only two days previously!!"

The mate got his tarpaulins.

Covers for Lifeboats

Boat covers should last between two and three years with care. The best type are the ones with five or six three-cornered lugs on each side, which allow the cover to be stretched taut by means of lengths of pointline passed under the keel. The old type which were secured by boatlacing round studs below the gunwhale, have practically disappeared.

Boat covers should be kept stretched taut at all times, for constant flapping in windy weather very soon wears them out. Approaching crowded waters or in the ice-region, they should be taken off, folded up and placed inside the boats where they may be useful in case of accident. The plugs should be removed in case of heavy rain. A little exposure to the weather tightens the boats up, and also, with the covers off, they are all ready for boat drill or survey on arrival in port.

Ships with rope boat falls should have snow covers for lacing round the tackles in the winter time, otherwise they are liable to be rendered unworkable by frozen snow.

Canvas reel covers are also necessary for protecting the falls. They should be made to fit round the outer edge of the reels so as to allow circulation of air round the rope.

In some trades awnings are necessary evils. They must be eased up in wet weather, and bowsed down in squally weather. In doubtful weather the question often arises as to the advisability of furling them. In the writers experience, the answer is "furl them or you'll lose them."

Hoses for Fire and Washing

Ships of the LEVIATHAN class have 150 hydrants with hoses and nozzles permanently attached, throughout the passenger and crew's quarters and storerooms etc., and another 50 hydrants for wash deck purposes. The hoses are woven, and supplied usually in 60-foot lengths. The couplings are attached by single stranded copper wire seizings, the work being done on board, generally by the lamptrimmer.

The hoses are renewed in strict rotation at the rate of six per voyage, the old ones being handed over to the boatswain for washing decks. By this means, hoses are completely renewed every 18 months. In the passenger quarters, it is useful to have a card inside each hydrant box, showing to what position the hose will stretch in either direction, and the stewards on duty in the vicinity should be acquainted with this information, and held responsible for their hydrants being in good order.

Canvas dodgers are going out of fashion. Wooden ones when set at the right angle, deflect the wind over the heads of men on watch, and they have the advantage of not wearing out. They can be made in sections, so as to be easily removable if required.

Swimming Pools, Sails, Etc.

Canvas swimming pools should be supplied plenty big enough to fit snugly into the box in which they are housed. They should be kept full, and clean, by a hose constantly running, and emptied and scrubbed thrice weekly, but they should *not* be removed from the box for this purpose, or for any other purpose except repair. They are best left alone and kept wet. Once they start to go they are pretty hopeless, and it is recommended that a spare one should be carried on a long cruise, to avoid disappointment to regular users. The average life of a canvas pool in constant use is about four months. This, of course, would depend on the weight and quality of canvas.

Boat sails should be hoisted at least once every four months and allowed to dry before re-stowing them in their bags. Sea anchors are favorite nesting places for rats and should be frequently examined for rat holes.

Spray screens, binnacle, telegraph and winch covers are other parts of the canvas equipment, but beyond keeping them clean, and in good repair, they call for no comment.

One steamship company occasionally sends round to captains a list of equipment supplied to ships and the average prices paid for each item. Such information, if issued judiciously to the officers, brings to them a realization of the value of the equipment entrusted to their care, and encourages a sense of responsibility and economy. The development of such virtues in these days of sparse business and cut-throat competition, is a "consummation devoutly to be wished."

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*The author, Capt. J. G. Bisset, is master of the Cunard liner ASCANIA.

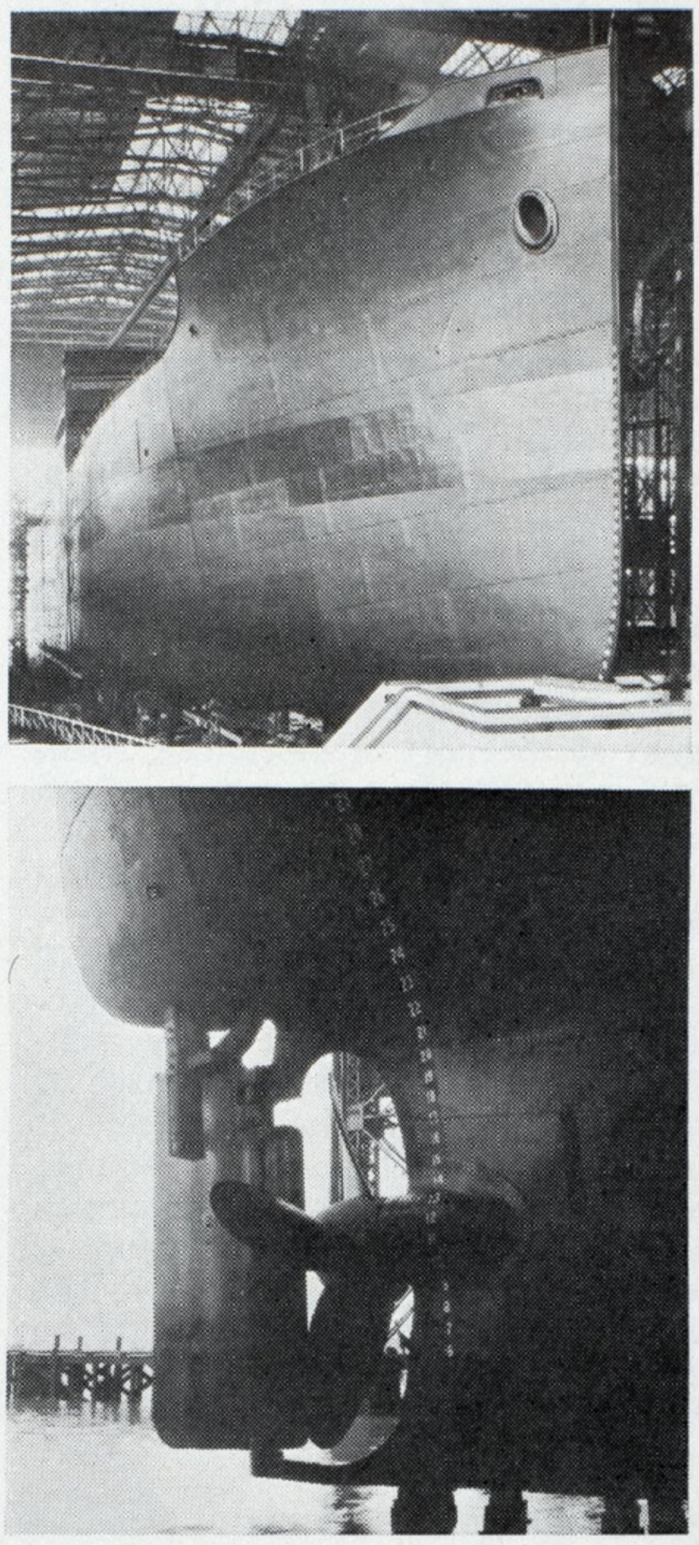
Socony-Vacuum, New Tanker Launched at Camden

CHRISTENED, the SOCONY-VACUUM, by Mrs. J. J. Maguire, wife of the president of the Standard Vacuum Transportation Co., a subsidiary of the Socony-Vacuum Oil Co., the first of two large ocean going tankers, was launched on Jan. 18 at the yard of the New York Shipbuilding Corp., Camden, N. J.

Her sistership, the MAGNOLIA, is to be launched at the same yard about the middle of March. Each vessel represents an outlay of about $2,000,000 and with the three coastwise, canal and Great Lakes tankers, the NEW HAVEN SOCONY, PLATTSBURGH SOCONY and POUGHKEEPSIE SOCONY, completed last year, constitute the largest merchant shipbuilding program in the United States at the present time. The launching of the SOCONY-VACUUM was attended by President J. J. Maguire of the operating company with a group of executives of the Socony-Vacuum Oil Co., also a number of naval architects and marine engineers, representatives of the American Bureau of Shipping, and others.

A Large Ocean Tanker

The SOCONY-VACUUM is an ocean going tanker 500 feet 1½ inches in length overall; 65 feet 9 inches in beam, and 37 feet in depth. She will have a gross tonnage of approximately 9600, and a total deadweight of 15,285 tons, on a draft of 29 feet 10¼ inches. There are ten main double tanks and six summer tanks each side, giving a total carrying capacity of 5,330,000 gallons.



Upper—Tanker Socony-Vacuum before launching

Lower—Stern view of tanker Socony-Vacuum before launching

Mrs. J. J. Maguire, sponsor of the tanker Socony-Vacuum, and Mr. J. J. Maguire, president of the Standard Vacuum Transportation Co.

Propulsion machinery, applied to a single screw will be double reduction geared turbines developing 4000 shaft horsepower, supplied with high pressure (said to be 375 pounds gage) superheated steam. It is estimated that the speed, fully loaded, will be 12½ knots on 30 tons of fuel per 24 hours.

The new vessel is equipped with the most modern aids to navigation, such as the Sperry gyro compass and pilot, radio direction finder, the fathometer, an electric deep sea sounding device, short and long wave radio communication system, and numerous other safety devices.

To build the steel hull of the SOCONY-VACUUM required 5300 tons of plates and shapes and 1,090,000 rivets and the construction of the vessel so far has required a total of 1,200,000 man hours of productive labor by the shipyard. Machinery, pumps, boilers and auxiliaries, purchased by the shipyard from outside concerns required approximately 800,000 man hours of productive labor.

"Approximately 2000 men have been employed on the construction of these two new tankers," Mr. Maguire stated at the launching. "In addition the building of these ships has given employment to a large number of men in other plants manufacturing equipment such as boilers, engines, electric generators, motors, pumps, piping, etc., in fact, it has been estimated that in figuring the cost for basic material and labor for a ship of this type, that no more than 20 per cent covers the cost of basic material—the balance goes for labor in the shipyard, steel mills, and other manufacturing plants."

Replaces Obsolete Tonnage

Mr. Maguire pointed out that the new ship will not increase any possible oversupply of tanker tonnage. This new tonnage is being built to replace an equivalent amount of old tonnage that has become obsolete.

The Standard Vacuum Transportation Co. now owns or operates under charter one of the largest fleets in the American merchant marine. It includes large ocean going vessels, with a total deadweight tonnage of almost 800,000 tons. More than 45,000,000 barrels of crude oil and refined products were transported by this fleet last year. For inland waterways and harbor transportation the company also operates 21 self-propelled barges, 140 towing barges, and 25 tugs which handle more than 57,000,000 barrels of oil during a year.

Keels for the SOCONY-VACUUM and for her sistership, the MAGNOLIA, were laid March 22, 1934. It is estimated that the SOCONY-VACUUM will be completed about May 1 and the MAGNOLIA about July 1. Possibly this time will be somewhat anticipated.

The new tanker Socony-Vacuum, waterborne after launching Jan. 18 at the New York Shipbuilding Corp., Camden, N. J.

Late Decisions in Maritime Law

Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review
By Harry Bowne Skillman
Attorney at Law

THE word "privity" of the owner, as used in the federal statute providing that the liability of the owner of any vessel, for any loss, damage, or injury occasioned or incurred without the privity or knowledge of such owner, shall in no case exceed the value of the interest of such owner in the vessel, etc., was held, in the Case of SOUTH COAST, 71 F. (2d) 891, to mean some fault or neglect in which the owner personally participates. The word "knowledge", as used, means some personal cognizance, or means of knowledge, of which the owner is bound to avail himself, of a contemplated loss, or of a condition of things likely to produce or contribute to a loss, without adopting appropriate means to prevent it. With these definitions in mind, the court held that where unseaworthiness which caused the loss of a vessel was without privity or knowledge on the owner's part, he was entitled to a limitation of liability; further, that where the owner was guided by directions, and sought to conform to requirements, of United States inspectors who inspected the boiler and the ship was lost when the boiler allegedly exploded, the owner was entitled to a limitation of liability, since any defect in the boiler would be without privity or knowledge of the owner.

* * *

FERRYBOAT, not making more than slow speed and no greater than that of another ferryboat, with which she collided in a dense fog, after stopping her engines and reversing on hearing such other boat's fog signal forward of her beam as the vessels neared each other on converging courses, was not at fault for the collision. Tuxedo, 8 Fed. Supp. 344.

* * *

IF VESSELS are in position to pass starboard to starboard, assent so to pass in not required; they must do so; the rule does not require one to start across the other's bows, or to stop and back. A tug coming up on the wrong side of a narrow channel has the burden of showing that she was not at fault for collision of a carfloat in her tow with a steamer; however, where such tug did not impede navigation of the steamer and the tug's lights were clearly visible by the steamer in time to shape her movements accordingly, the tug's fault did not contribute to the collision.—BELLHAVEN, 72 F. (2d) 206.

* * *

WHERE a bill of lading provides that no claim arising thereunder shall be valid unless made in writing by consignees to the carrier's agent at the port of discharge, within a specified time, compliance with such clause is necessary to recovery. This is true said the court in the case of Rhodes v. United States, 8 Fed. Supp. 124. Though the carrier had knowledge of the damage to the cargo or the consignee had given written notice of the damage; notice of damage was not notice of claim. It was further held that where damage to lily bulbs shipped from Japan was claimed to be the result of heating and decay, which was excepted by the bill of lading, recovery could not be had except by proof of negligence on the part of the shipowner.

* * *

FERRYBOAT proceeding in a fog at half speed, i.e., four miles an hour, which was too fast to enable her to stop within the limit of visibility, which was about 100 feet, and a barge whose bargee answered the ferryboat's fog signal by hammering with a stick on an old dishpan four or five times, while standing in a doorway of his housing, were both at fault for a collision between the vessels; decree awarding half damages to the owner of the ferryboat was entered by the court in the case of Hopatcong, 8 Fed. Supp. 327.

* * *

WHEN a seaman claims to have been injured by the tort of his employer, even though he was engaged in the performance of a maritime contract when so injured, the question whether liability is to be determined according to the rules of the maritime law or according to the rules of the local law, depends upon the question whether such injury was received on navigable water or on land. In the case of Kulczyk v. Rockport Steamship Co., 8 Fed. Supp. 336, it was declared that as the injuries complained of were sustained by the plaintiff while he was standing upon a dock on land and not upon a vessel, or elsewhere on any navigable water, the injuries constituted a nonmaritime tort, not subject to the rules of the maritime law. The rights and liabilities of the parties, it was held, were governed by the applicable law of the state in which the dock referred to was located.

* * *

THE 12-mile limit, within which foreign vessels may be seized, has been superseded as to British vessels by a treaty, which permits boarding to examine the manifest, etc., beyond the three-mile limit, if the vessel is within one hour's sailing distance of the coast, but forbids it as to vessels not within such sailing distance. This treaty, it was pointed out in the case of Golmaccam, 8 Fed. Supp. 338, was not abrogated by repeal of the prohibition amendment.

* * *

STEAMSHIP passenger, who accepted a ticket with printed limitation of value of her baggage unless a greater value were declared and paid for, became bound thereby (LEVIATHAN, 72 F. (2d) 286), though notice of what her choice of rates might be was printed on the back of her ticket and not specifically called to her attention. Such limitation of value of the passenger's baggage was binding on her, though she was a minor when she bought and used the ticket.

* * *

A BARGEE, who fell into the water when the shore end of the gangplank of a steamer, alongside which the barge was brought to receive cargo, slipped off as he was going ashore after the day's work to enjoy his leisure, was an "invited person", for whose safety the steamship owner owed the duty to exercise reasonable care. An "invited person", within the above ruling in the case of Radoslovich v. Navigazione Libera Triestina, S. A., 72 F. (2d) 367, is one who enters the premises of another not only for his own purposes but in the interest of the owner, who must be aware that the mutual interest of both may lead to such an entry.

Marine Business Statistics Condensed

Record of Traffic at Principal American Ports for Past Year

New York

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	282	1,429,129	267	1,409,462
November	280	1,356,331	306	1,475,818
October	290	1,555,651	284	1,539,537
September	271	1,645,919	284	1,624,272
August	296	1,815,221	332	1,859,966
July	313	1,686,825	295	1,574,395
June	239	1,696,804	324	1,785,815
May	291	1,597,233	316	1,662,711
April	288	1,599,185	274	1,477,492
March	302	1,706,307	313	1,757,221

Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	62	184,844	47	136,559
November	58	156,483	56	130,800
October	55	143,330	56	146,265
September	52	143,092	44	115,845
August	56	151,501	41	120,875
July	48	125,616	35	89,902
June	61	191,042	53	155,308
May	58	169,719	50	143,652
April	67	199,032	48	147,083
March	59	162,480	48	140,311

Boston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	91	309,706	59	211,394
November	92	287,743	55	205,590
October	93	339,602	63	234,302
September	110	362,773	75	238,557
August	129	377,219	106	363,789
July	136	374,494	112	392,586
June	125	337,627	105	316,594
May	105	301,785	82	245,571
April	86	309,725	58	227,404
March	88	304,604	64	259,406
February	71	247,077	46	162,542

Portland, Me.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	12	24,738	16	37,026
November	21	41,916	19	34,399
October	19	34,735	17	28,611
September	16	35,064	15	34,285
August	23	31,559	21	31,672
July	14	27,034	12	26,525
June	15	30,296	16	43,232
May	15	27,376	15	32,378
April	14	20,555	15	20,572
March	13	33,399	13	33,399

Providence

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	1	2,316	3	10,988
November	4	9,158	2	2,192
October	3	11,084	1	1,901
September	4	13,022	2	8,628
August	7	12,240	5	11,809
July	4	11,634	4	17,821
June	8	14,773	4	4,887
May	3	4,985	1	2,022
April	3	4,985	1	2,022
March	5	17,973	2	7,422

Portland, Oreg.

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	27	107,555	49	185,192
November	32	129,510	44	165,914
October	27	104,387	47	182,669
September	22	83,223	41	147,290
August	30	119,182	49	194,079
July	12	46,946	11	39,730
June	10	34,726	1	2,298
May	11	41,765	17	58,993
April	31	117,094	42	157,954
March	32	121,085	50	186,817
February	25	95,774	52	198,593

Baltimore

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	97	299,281	95	309,991
November	88	271,778	94	288,109
October	96	282,930	100	308,916
September	91	276,111	93	284,297
August	92	278,812	96	280,641
July	108	319,702	106	317,583
June	108	339,280	112	356,445
May	104	329,312	107	328,998
April	102	300,396	108	334,583
March	92	288,061	88	273,131
February	77	261,122	77	263,236

Norfolk and Newport News

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	148	420,417	138	401,430
November	32	121,636	45	113,181
October	28	83,089	41	102,639
September	26	67,068	44	107,698
August	21	111,553	37	113,616
July	25	76,320	33	91,111
June	39	91,293	57	127,068
May	31	71,706	50	103,737
April	21	65,701	47	125,291
March	23	64,469	60	151,360

Jacksonville

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
November, 1934	20	29,468	13	25,052
October	13	22,913	17	32,357
September	18	21,329	18	24,657
August	20	25,558	21	37,676
July	18	16,470	16	18,145
June	16	21,226	18	30,898
May	14	13,340	22	38,824
April	10	10,464	7	12,164
March	9	16,338	9	11,193
February	8	10,900	11	20,348

Key West

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	23	33,454	24	33,915
November	24	30,272	27	32,493
October	26	26,491	25	26,899
September	21	23,268	21	23,282
August	23	24,392	24	24,706
July	25	24,469	25	25,564
June	28	33,701	25	32,548
May	40	57,180	42	58,094
April	28	36,197	21	36,066
March	24	38,052	23	37,658

Mobile

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	95	203,188	90	196,487
November	89	201,492	95	222,543
October	109	278,352	107	266,966
September	102	228,304	115	260,544
August	108	256,663	101	237,852
July	102	221,011	99	225,308
June	119	254,040	115	237,054
May	115	255,503	114	253,294
April	113	254,839	103	239,371
March	115	275,629	129	309,123

Seattle

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	51	222,427	47	201,642
November	46	185,293	48	205,795
October	54	230,438	55	222,014
September	45	184,361	43	221,241
August	43	176,644	54	223,038
July	24	93,558	20	82,646
June	16	73,128	12	52,309
May	22	103,441	19	86,295
April	62	264,608	67	278,172
March	52	203,796	51	205,371

New Orleans

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	172	472,463	174	477,672
November	157	431,288	157	430,060
October	175	499,832	177	492,802
September	159	453,453	157	426,341
August	145	385,557	154	403,163
July	156	439,297	154	423,642
June	141	300,349	151	416,734
May	167	482,123	152	421,839
April	169	487,655	170	475,121
March	155	422,855	166	449,394
February	151	446,952	145	414,515

Charleston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
November, 1934	43	128,750	39	112,755
October	47	165,814	37	105,739
September	35	102,325	28	80,390
August	32	97,695	36	97,663
July	41	99,233	34	81,362
June	36	95,072	31	81,094
May	36	98,475	23	69,764
April	38	101,315	34	96,705
March	44	131,839	37	109,492
February	40	112,884	39	109,597

Galveston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	20	29,298	58	157,843
November	22	43,980	71	255,378
October	16	29,015	70	207,637
August	12	21,967	55	160,727
July	21	33,508	60	163,282
June	25	57,920	71	215,594
May	21	34,457	56	141,885
April	27	50,294	82	219,283
March	29	54,379	94	264,101
February	22	41,945	77	236,784

Los Angeles

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	239	899,269	222	882,697
November	226	870,032	210	878,186
October	225	856,732	203	825,348
September	214	804,221	197	791,324
August	218	801,482	201	785,671
July	198	710,210	186	755,686
June	201	743,198	186	738,880
May	200	754,695	197	738,307
April	186	696,716	167	679,883
March	168	669,548	169	691,230

San Francisco

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
December, 1934	152	659,210	154	628,137
November	151	664,456	175	733,150
October	152	670,992	156	663,353
September	146	614,180	160	675,941
August	160	699,105	178	781,553
July	118	484,655	119	471,702
June	126	386,966	110	456,027
May	152	452,827	140	593,715
April	165	831,501	169	729,273
March	150	659,251	181	772,219

Houston

(Exclusive of Domestic)

Month	—Entrances— No. ships	Net tonnage	—Clearances— No. ships	Net tonnage
November, 1934	39	143,055	39	139,616
October	43	145,461	41	139,418
September	49	169,676	49	170,694
August	19	76,101	22	88,631
July	24	93,810	24	86,702
June	27	115,730	33	133,108
May	29	109,223	45	132,318
April	31	121,318	40	155,327
March	23	89,200	39	144,546
February	22	88,094	26	99,931

Note: At the port of Philadelphia, additional vessels in the foreign trade (via other American ports) were 63 of 211,880 net tons entered and 80 of 280,419 net tons cleared for the month of December.

Latest Data on New Marine Work

Information on New Ships Ordered—Building and Repair Contracts Let—Sales—Reconditioning—Launchings—Trial Trips

MERCHANT shipbuilding in the United States during 1934 continued at an unusually low level. As far as activities in the principal shipyards are concerned, this was more than offset by the comparatively large program of naval building. In his annual report, covering shipbuilding in the United States and abroad, during 1934, issued Jan. 1, H. Gerrish Smith, president of the National Council of American Shipbuilders, said in part:

"Throughout the year the United States remained at the bottom of the list among the principal maritime nations in the volume of merchant tonnage under construction.

"During 1934, the private shipyards of the United States were engaged almost wholly in the construction of naval vessels.

"On Jan. 1, 1934 there were under construction in the private shipyards of the United States, which build seagoing vessels, two cargo vessels, three small tankers and 27 naval vessels, representing an aggregate value of unfinished business totaling approximately $147,000,000.

"In the current year (1934) contracts were awarded for two 15,000-deadweight-ton tankers, one small tanker and 11 naval vessels. The approximate total value of these new contracts aggregated $57,000,000.

"The approximate value of work performed on new construction, including vessels under construction at the beginning of the year and vessels for which new contracts were placed during the year, totaled $85,000,000. The greater part of this amount was expended for the purchase of shipbuilding materials and equipment from allied industries. This amount gave employment to about 45,000 persons throughout the year. The value of unfinished business on hand at the end of 1934 was approximately $119,000,000.

"There has been no construction of new merchant vessels on the Great Lakes during the (past) year and construction on the great rivers has been below normal.

"At the beginning of the year (1934) 27 naval vessels aggregating 134,300 displacement tons were under construction in private shipyards.

"In August, additional naval contracts were placed with private builders for 11 vessels aggregating 33,600 displacement tons.

"Deducting five naval vessels, totaling 27,900 displacement tons which were delivered during the year, there is a balance of naval construction on hand in the private shipyards at the end of the year (1934) of 33 naval vessels totaling 140,000 displacement tons.

"Certain factors upon which the building of merchant vessels depend have shown improvement in the past year as follows:

(a) Both the import and export trade of the United States during the first nine months of 1934 increased considerably over the corresponding period of 1933, the actual figures being $2,141,663,000 for import and export trade combined in 1933 and $2,782,362,000 in 1934, or an increase of 30 per cent.

(b) During the first nine months of 1934 the volume of intercoastal trade increased 18 per cent over that of the corresponding period in 1933 and 49 per cent over the same period in 1932.

(c) Panama canal traffic in 1934 has shown a marked improvement over that in 1933. The percentage of American vessels remains about the same for each year.

(d) Idle tonnage throughout the world declined from 8,891,000 gross tons on Jan. 1, 1934, to 6,035,000 gross tons on Oct. 1, 1934.

Replacement of Merchant Ships

"As is well known, most of our foreign trade merchant fleet was constructed during the World war period and these vessels now average more than 15 years old.

"If the United States is to continue its present position in the carriage of its own foreign trade in its own ships, a replacement program must be begun without delay. Based on the present tonnage of American vessels in foreign trade, it will require an annual construction program of at least 150,000 gross tons of sea-going merchant vessels each year to carry one-third of our trade in our own ships."

Boilers for Lake Vessels

Considerable recent activity is noted in the reboilering of a number of vessels on the Great Lakes. The following is a summary of these projects, in each instance calling for the installation of Babcock & Wilcox marine watertube boilers.

Two Scotch boilers are being removed from the United States army dredge SAVANNAH and are being replaced with two marine watertube boilers, each having 2550 square feet of heating surface. The new boilers are being equipped with superheaters to give approximately 50 degrees of superheat. The boilers will be equipped with oil burners also supplied by The Babcock & Wilcox Co.

Four boilers are being removed from the dredge INDIANA of the Great Lakes Dredge & Dock Co. and are being replaced with two oil-fired marine watertube boilers to operate at 325 pounds pressure with approximately 200 degrees superheat.

The bulk freight steamers WILLIAM J. FILBERT and FRANCIS E. HOUSE, belonging to the Pittsburgh Steamship Co. and located in River Rouge, Mich., are having their Scotch boilers removed and replaced with coal fired marine watertube boilers. Air heaters are to be installed and the boilers will operate at 240 pounds pressure, each boiler having 3729 square feet of heating surface.

The United States army tug ESSAYONS, laying at Duluth, is having her Scotch boiler removed and one coal fired marine watertube boiler installed in its place. The new boiler is to operate at 225 pounds pressure and will have approximately 2500 square feet of heating surface.

Converting Ferry Peralta

While no contract has been awarded by the Puget Sound Navigation Co. for reconstructing of the steel ferry PERALTA, much preliminary work is being done at the yard of the Lake Washington Shipyards at Seattle.

The old turbine electric propulsion unit has been removed, a new engine bed installed and other operations started. The 3000-horsepower Busch Sulzer diesel engine has been placed in the hull and the auxiliaries have been installed.

It has not yet been decided whether the new upper works are to be of steel or wood construction. The PERALTA, formerly a Key System, San Francisco bay ferry, damaged by fire, will, when completed, operate between Seattle and the Puget Sound navy yard at Bremerton, Wash., carrying both passengers and automobiles.

She will be the largest vessel of her type in the waters of Seattle, and also the speediest. A speed of 17½ knots is anticipated.

Bids Opened for New Ferry By Erie Railroad

Bids were opened on Jan. 3 at the offices of the Erie Railroad Co., Cleveland, for the construction of a new ferry for the railroad's service on the North river between terminals at New York and New Jersey.

Six shipyards submitted bids. On the basic specifications these bids were in order as follows: Maryland Dry Dock Co., $502,494; Sun Shipbuilding & Dry Dock Co., $516,000; The Pusey & Jones Corp., $566,920; Federal Shipbuilding & Dry Dock Co., $609,450; and United Dry Docks Inc.,$699,000; Robins plant of Todd Shipyards Corp., also submitted a bid, still somewhat higher. The time ranged from 180 to 300 days.

Alternate bids were also received using watertube boilers with either geared turbine or unaflow engine propelling power, Maryland Dry Dock Co. asking an additional $13,668 over the base price for furnishing the unaflow engine and watertube boilers and $4600 over the base price for watertube boilers and geared turbines with surface condenser and $700 over the base price for the same installation using jet condenser. Sun Shipbuilding & Dry Dock Co. asked $9358 over the base price for either geared turbine or unaflow engine with watertube boilers. The Pusey & Jones Corp. asked an additional $13,910 over the base price for watertube boilers and unaflow engine, also $4890 and $1030 over the base price, respectively, using watertube boilers and geared turbines with surface and jet condensers.

The new ferry is to be of steel construction, double ended, with screw propellers at each end. Length overall over guards will be 234 feet; length between perpendiculars, 193 feet; breadth extreme over guards, 64 feet; breadth molded of hull at waterline 40 feet; breadth molded of hull at deck, 45 feet; depth molded, 18 feet, 3 inches; the crown of the deck beams will be 6 inches.

The basic specifications called for two inverted direct acting two-cylinder compound jet condensing reciprocating engines, with cylinder diameters 19 inches and 39 inches for high and low and a stroke of 28 inches; the piston speed to be 750 feet per minute. Steam to be supplied by two Scotch coal burning boilers with a working pressure of 160 pounds per square inch; the boilers to be 13 feet, 2 inches inside diameter and 13 feet, 6 inches long overall. There are to be two steam single engine driven, 25-kilowatt, 125-volt, at 360 revolutions per minute electric generating sets.

Alternate proposals on which bids were received call for two coal burning watertube boilers of 200 pounds per square inch pressure to operate at 175 pounds per square inch working pressure and 100 degrees superheat. Each boiler to supply 13,500 pounds of steam per hour with feed temperature to boiler 170 degrees Fahr., at 175 pounds gage pressure. With this steam plant one of the alternate proposals calls for a geared turbine and the other for one unaflow steam reciprocating engine developing normally 1500 indicated horsepower at 130 revolutions per minute, and a maximum of 1700 indicated horsepower at 135 revolutions per minute operating on a steam pressure of 175 pounds. At 88 revolutions per minute, the engine is to develop 500 indicated horsepower with proportionately varying horsepower between these and the maximum revolutions per minute.

It is expected that Kingsbury thrust bearings will be used. The stern bushings are to be equipped with Goodrich cutless bearings. The propellers are to be of cast iron, four bladed, solid and will be about 9 feet in diameter and 12 feet, 6 inches in pitch.

Contract has not been awarded as this is written. It is almost certain that watertube boilers will be decided upon, and it is likely that either the unaflow engine or geared turbine will be selected for propelling power.

The Titusville Iron Works Co., Titusville, Pa., has received a contract in the amount of $18,440 for two boilers for the tender CROCUS, from the superintendent of lighthouses, Tenth district, Buffalo.

Northwest Shipbuilding, Smaller Vessels

To replace the wood sternwheel steamer HARVESTER, sunk during a heavy gale at Seattle last October, the Lake Union Dry Docks & Machine Works, Seattle, is constructing a somewhat larger craft of the same type. The new vessel, which is likely to be named HARVESTER, will be 165 feet long with a beam of 40 feet and a light draft of 7 feet for negotiating the rivers emptying into Puget sound.

She will have a freight capacity of 400 tons. Power will be furnished by boiler and engine taken from the dismantled Columbia river steamer WENTWORTH. The propeller will be 9 feet, 8 inches in diameter. The hull of the new vessel is to be of wood construction.

Puget Sound shipyards have a normal volume of work under way. In addition to four steel trollers, 44 and 48 feet in length, the Berg Shipbuilding Co. is building four wooden craft. These include a 60-foot despatch boat, two 40-foot wooden trollers and a 42-foot ketch for service in Alaska. They will all be diesel powered with units ranging from 25 to 50 horsepower. Engines for the steel fishermen will be furnished by A. C. Estep, who has developed his own type of diesel engine.

Four wooden hulls, a 72-foot tug and three large barges are building at the plant of the Winslow Marine Railway & Shipbuilding Co. for the Alaska-Juneau Gold Mining Co., Juneau, Alaska. The tug is designed for heavy ocean towing and will be equipped with a 275 horsepower diesel engine.

Western Boatbuilding Co., Tacoma, Wash., is constructing an 80-foot wooden fishing boat for the tuna grounds off California, and a 75-foot purse seiner for Alaska. Both will be diesel powered. The WESTERN MAID, a 75-foot combined sardine-tuna fisherman recently completed at the Tacoma plant has been sold to California interests.

The United States engineer office, Louisville, Ky., on Jan. 15, opened bids for supplying 24-inch dredge pump and spare parts.

Bunker Prices

At New York

	Coal F. a. s. per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
Jan. 19, 1935	5.63@5.38	1.20	4.65
Dec. 19	5.63@5.38	1.20	4.65
Nov. 19	5.63@5.48	1.20	4.65
Oct. 19	5.63@5.48	1.20	4.65
Sept. 19	5.63@5.48	1.35	4.79
Aug. 18	5.63@5.48	1.35	4.79
July 19	5.63@5.48	1.35	4.79
June 19	5.63@5.48	1.35	4.79
May 18	5.63@5.48	1.35	4.79
April 19	5.63@5.48	1.35	4.79
Mar. 19	5.35@5.20	1.25	4.79
Feb. 19, 1934	5.35@5.20	1.25	4.79

At Philadelphia

	Coal trim in bulk per ton	Fuel oil alongside per barrel	Diesel engine oil alongside per gallon
Jan. 19, 1935	4.93@4.68	1.20	4.61
Dec. 19	4.93@4.68	1.20	4.61
Nov. 19	4.93@4.78	1.20	4.61
Oct. 19,	4.93@4.78	1.20	4.61
Sept. 19	4.93@4.78	1.35	4.76
Aug. 18	4.93@4.78	1.35	4.76
July 19	4.93@4.78	1.35	4.76
June 19	4.93@4.78	1.35	4.76
May 18	4.93@4.78	1.35	4.76
April 19	4.93@4.78	1.35	4.76
Mar. 19	4.65@4.50	1.25	4.76
Feb. 19, 1934	4.65@4.50	1.25	4.76

Other Ports

Jan. 19, 1935

Boston, coal, per ton	$9.00
Boston, oil, f. a. s. per barrel	$1.09
Hampton Roads, coal, per ton, f.o.b. piers	$4.75
Cardiff, coal, per ton	13s 9d
London, coal, per ton	—s —d
Antwerp, coal, per ton	15s 9d
Antwerp, Fuel oil, per ton	—s —d
Antwerp, Diesel oil, per ton	—s —d
British ports, Fuel oil	—s —d
British ports, Diesel oil	—s —d

Build All-welded Steel Pier for Loading Bulk Cement

By A. F. Davis*

THE one half mile long pier, shown in the accompanying illustration, required over a year to build. It was constructed for the Santa Cruz Portland Cement Co. by Merritt-Chapman & Scott, San Francisco, as contractors, under the direction of R. C. Helen, superintendent, as part of its plan to transport bulk cement from its plant at Davenport, where there is no harbor, to various points along the West coast.

The pier carries two 12-inch pipe lines for cement, one 6-inch oil line and one 3-inch water line. Parson, Clapp, Brinkerhoff and Douglas, New York acted as consultants in working out the design.

In order to provide a structure that would withstand the constant battering of the waves not a bolt nor a rivet was used. All connections were made by arc welding.

A survey of the ocean bottom for the entire length of the proposed structure was made in September 1933. The bottom was found to be shale the full length of the project, with sand depths varying between six inches and six feet. A careful check was made to be sure the extending pier would be headed directly into the seas.

H-Column Piles Used

From the results of the survey it was decided to use H-column piles and to drive them to refusal with as much penetration as possible.

A combination steel cylinder and H-beam pile trestle, well braced and carrying a timber deck was designed. The procedure adopted for construction consisted of completing each bent and span of the pier before starting the next. All connections were arc welded, there being over five miles (26,790 linear feet) of welding in the entire structure. More than 22,000 pounds of electrode were used. The welding equipment was supplied by The Lincoln Electric Co., Cleveland, who also acted as consultant for the welding operations.

The first 840 feet of pier consists of 56 bents on 15-foot centers, each bent having three 33-pound H-column piles. The two outside piles are battered 12 on 1. Each bent is X-braced with every other bent sway-braced by 4 x 4 x ⅜-inch angles. The three piles are tied together with a sash brace. A longitudinal brace of 4 x 4 x ⅜-inch angles carries through on each outside pile of the bent. The piles are tied together longitudinally by a truss four feet deep. All braces are electrically welded and the bents are capped with 12 x 12 inches x 16-foot timbers.

Completion of the 840 feet from the abutment brought the pier to the breaker line where the water had a depth of 14 feet at mean lower tide. Since the breaker line is the point of greatest wave force, heavier construction was used through the breaker line and for the remaining 80 bents of pier which were spaced on 18-foot centers.

Welding Under Difficulties

The welding was carried on in conjunction with the pile driving and steel erection. All braces were tacked in place and welded. As the welding on each bent was completed, the temporary framework was moved ahead and welding started on the next bent. It was absolutely necessary to complete the welding of each bent before moving ahead as any work not tied together would be knocked down by the heavy seas which came without warning. About 24 hours were required for welding each bent of the pier.

The welding was carried on almost entirely from boatswains' chairs and work was seriously hampered by rolling seas. The welding of the bottom braces was done under particularly trying and hazardous conditions.

All materials used in construction had to be handled over a 50-foot bluff with a 100-foot boom stiff-leg derrick and carried out on the pier on cars pushed by a small locomotive.

Tunnel from Silos to Pier

In order to transport the cement from the storage silos at the plant to the ship, a 6 x 7-foot tunnel 360 feet long was driven from the silos to shore end of the pier. Two 12-inch pipe lines carry cement which is pumped from the silos through the tunnel and along the pier to the ship.

A 36-foot square pier head was constructed at the sea end of the pier. This is supported by four 7-foot diameter cylinders anchored into the shale by six H-piles driven in each and filled with concrete. The cylinders are placed 36 feet apart to form the square and are tied together with structural steel, all welded.

Placing the cylinders for the pierhead required driving falsework piling and 34 steel H-beams which were later cut off at the ground line by a diver using an oxyelectric under water cutting torch, with current generated by a 300 ampere arc welding machine.

When a ship is taking on a cargo at the pierhead it is necessary that it lay clear. The ship is held off by eight moorings, four each for the bow and stern, consisting of old fashoned 16,000-pound stock anchors, with 60 fathoms of chains, supported by a buoy. These moorings are placed so that the ship heads into the seas.

A small derrick at the end of the pier handles the two 12-inch hose from the ends of the cement pipe lines to the ship. Each 12-inch line carries 1000 barrels of cement an hour.

Loading bulk cement through pipe lines from shore silos onto ship (the Santacruzcement, a self unloader) at Davenport, Calif., over new all-welded steel pier

*The author, A. F. Davis, is vice president, The Lincoln Electric Co. Cleveland.

The new Cunard White Star superliner, QUEEN MARY, will be steered by the most modern type of gyro compass and gyro pilot which means that the vessel will continue automatically on any course set.

Panama Canal Traffic Is Steadily Increasing

Acting Governor C. S. Ridley of the Panama canal recently said: "The year 1934 has continued a steady increase of traffic through the Panama canal since the low point of 1932. The volume of shipping passing through the canal provides a means for gaging the progress being made toward world recovery from the depressing business conditions and this growth of traffic during the past two years lends support to the world-wide hope that substantial progress already has been made toward business recovery."

The showing in traffic through the Panama canal for the 12-month period ended Nov. 30, 1934, as compared with the same period in the preceding year, is distinctly favorable. For this period 5375 vessels of 29,256,117 Panama canal net tonnage, carrying 26,002,108 tons of cargo, paying a total of $24,609,449.88 in tolls, transited the canal, as compared with 4520 vessels of 24,695,-336 Panama canal net tonnage, carrying 20,575,178 tons of cargo, paying a total of $20,979,569.29 in tolls for the preceding year.

Houston Sets New Record In Port Traffic

More cargo passed over the docks at the port of Houston in 1934 than ever before, breaking all previous high records. The total was 18,516,318 short tons, valued at $382,684,410. This new high mark exceeded 1933, the previous peak year, by 1,586,547 tons or 9.37 per cent; and it amounted to an increase of 45.63 per cent over 1932 and an increase of 32.48 per cent over 1931.

This record is particularly significant since the cotton exports for the year were only 1,607,126 square bales.

Communications in the Merchant Marine

By Capt. S. C. Hooper*

THE discussion on communications as applied to the merchant marine, prepared by Capt. S. C. Hooper, U.S.N., published last year in the August and September issues of MARINE REVIEW, has been received with much interest. Comments on Captain Hooper's article, by the radio operator of a merchant vessel, appeared in the December issue. In the accompanying article Captain Hooper replies to criticism of his article, making it clear that no reflection upon the efficiency of radio operators of the merchant marine was intended.

SINCE the publication of my recent article, relating to communications in the merchant marine, comments have been received which lead me to believe that clarification and further discussion of some points therein are desirable.

The article previously published was written in the hope that it might arouse interest in a situation which it is believed all will agree is in need of improvement. What specific measures for improvement are practicable is a matter for discussion. For example, the question as to whether the radio officer or a deck officer should be designated as communication officer is debatable. That question, however, is secondary in importance to the proposition that a communication officer is desirable, and that he should have not only a working knowledge of the possibilities and limitations of radio and other communication means, but should also have sufficient knowledge of the problems of deck and navigating officers to enable him properly to utilize and to relate the comparatively new radio agencies with respect to the navigation and safety of the ship.

It is unfortunate that some portions of my previous article have been interpreted as reflecting upon the efficiency of radio operators of the merchant marine. No such reflection was intended. My own experience is that radio personnel are well trained and doing their job admirably. It was desired to point out that the efficient use and co-ordination of radio, visual, above-water and under-water sound communication facilities should not be considered a responsibility of radio operators alone, but also of masters and deck officers.

Radio aids to navigation are today as important to the navigating officer as are the lights and sound signals along the coast. They have the distinct advantage of being useful when the ship is outside the danger zone of shoal water. Masters and deck officers know from long experience the accuracy to be expected from old established navigational aids, such as the sextant or the sounding machine, and the judgment necessary in giving weight to various observations. Yet many such officers do not have sufficient communication knowledge to determine the reliance to be placed upon bearings from shore radio direction finders or those taken by the ship, or concerning new type sounding devices. Many of them do not have information as to whence and when they might get weather, ice or hydrographic information in various localities. Some do not realize the capacity and limitations of their radio equipment, a vital point in time of emergency.

Increased communication knowledge on the part of masters and deck officers would be not only to their advantage, but to that of radio operators as well. Masters would then be in position to appreciate and to support operators' requests for more modern and efficient equipment and an adequate complement of radio personnel. They would not expect a two-man complement to guard numerous channels, such as news, traffic and distress frequencies, simultaneously, as though there were a radio complement of eight. They would insure that the radio room was equipped with up-to-date editions of all the documents required. They would, in short, be in better position to present problems of the radio operators before the managers and directors of the companies.

The present position of merchant marine radio operators is to some extent analogous to that of navy operators at the time I first became United States fleet radio officer, in 1912. I then found that operators had to spend their own money for parts of equipment, because their needs were not properly appreciated by the ranking officers. It was only by interesting the officers themselves in this comparatively new field that conditions were remedied. Captains of ships demanded proper equipment and sufficient personnel to use and maintain it. A good promotion scheme for operators also resulted.

If the American merchant marine will profit by the experience of the navy, deck officers as well as radio operators will be benefited, and, thereby, also the traveling public.

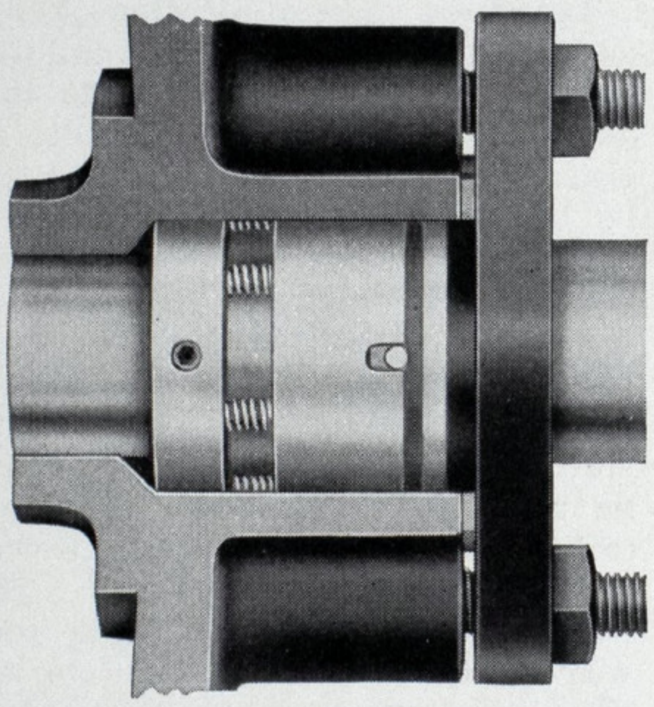
*The author, Capt. S. C. Hooper, U. S. N., is director of Naval Communications, United States Navy.

Equipment Used Afloat and Ashore

Mechanical Seal—Deck Covering—Goggles—Bridge Wall—Cutting Machine—Graphite Lubrication—Twin Rail—New Pumps—A. C. Welder

TO IMPROVE upon the ordinary stuffing box for centrifugal and rotary pumps, the Durametallic Corp., Kalamazoo, Mich., has developed a new and effective patented mechanical seal. It is particularly useful where gritty or corrosive liquids and gases are present. It can be applied to ordinary stuffing boxes. The accompanying illustration shows an inside assembly of this new type of stuffing box, which is suitable for use against light thin fluids having a pressure of 30 pounds or more and heavy fluids having a pressure of 60 pounds or more.

A wide variety of metals and other materials may be used in the construction of the new seal for resistance against corrosion by practically all chemicals and so that



Inside assembly of new stuffing box, for centrifugal and rotary pumps

grit cannot get between the seal ring and the face of the bushing or gland. Vessels in harbor service often operate in comparatively shallow water causing grit to pass through their pumps. Under such conditions it has been definitely demonstrated that this new type of packing will give excellent service.

A Light Deck Covering

SINCE every pound put into a vessel reduces its carrying capacity, lightness without loss of strength or serviceability is always sought for materials used in shipbuilding. Recognizing this need the Selby-Battersby Co., Philadelphia, recently developed, after four years of research and experiment, a plastic deck covering of a specific gravity of about two thirds that of any magnesite flooring. Furthermore, it can be laid about one-half the thickness for satisfactory results, which means that it will weigh after application, about one-third as much per square foot as magnesite. Translated into tons, this means for a vessel carrying 300,000 square feet of deck covering a saving of 400 to 600 tons depending on the thickness of the magnesite.

Whereas standard specifications on magnesite deck covering usually call for a thickness of not less than ⅝-inch or ¾-inch over double laps which means a maximum thickness in some cases of 1½ inches, the minimum thickness of this new deck covering need be no more than ¼-inch.

Application of the new material consists of three simple steps; first a bonder is applied with a brush or notched trowel to every square foot of the steel decks which are to be covered. When this bond has become tacky, a mixture of the new compound and emulsion is applied in plastic form with a trowel to a minimum thickness of ¼-inch. Heavy steel wire reinforcement welded to the steel decks may be employed.

Goggles for Hot Workers

MEN working in confined spaces or where the temperature or humidity is high will find the new type of goggle, recently developed by the American Optical Co., Southbridge, Mass., particularly useful. In the new goggle shown in the accompanying illustration, the area usually allowed for ventilation is practially doubled. This extra ventilation, in back of the lenses, keeps them free from fogging and steaming, and also keeps the area around the eyes cool, thus preventing perspiration from obscuring vision.

Besides providing clear and comfortable vision, the new goggle gives dependable eye protection. Sturdy construction plus the super armor-

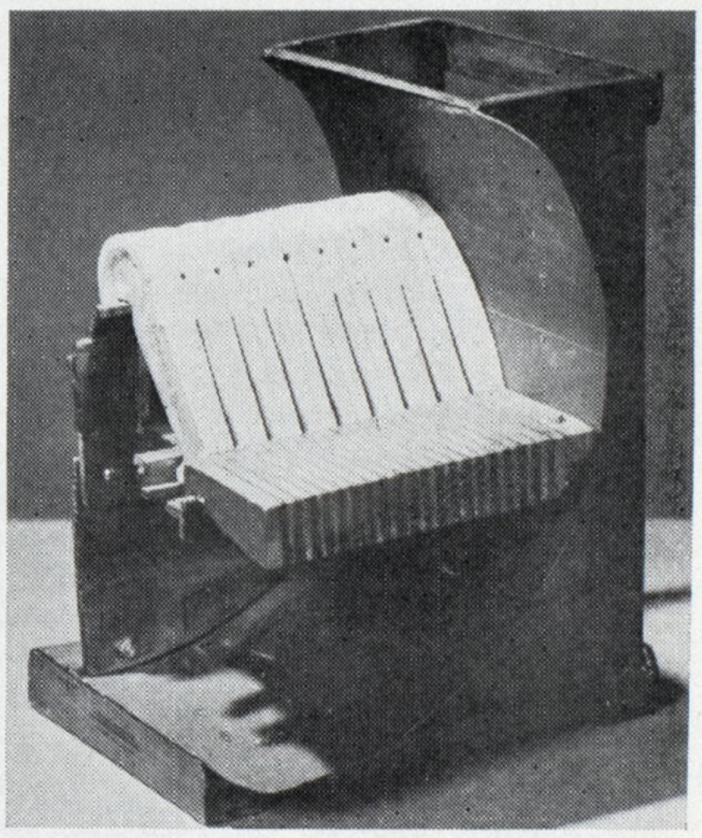
Goggles suitable for working in hot and humid localities

plate lenses give the worker a goggle he can wear with comfort and confidence.

New Furnace Bridge Wall

THE new improved Hynd's furnace bridge wall, recently introduced by the American Ship Building Co., Cleveland, has a number of advantages which marine engineers will appreciate. A model section of the new furnace bridge wall is shown in the accompanying illustration.

By means of alternate sets of air channels between the bars two streams of air distribution are provided; one to burn the coal of the



Improved furnace bridge wall

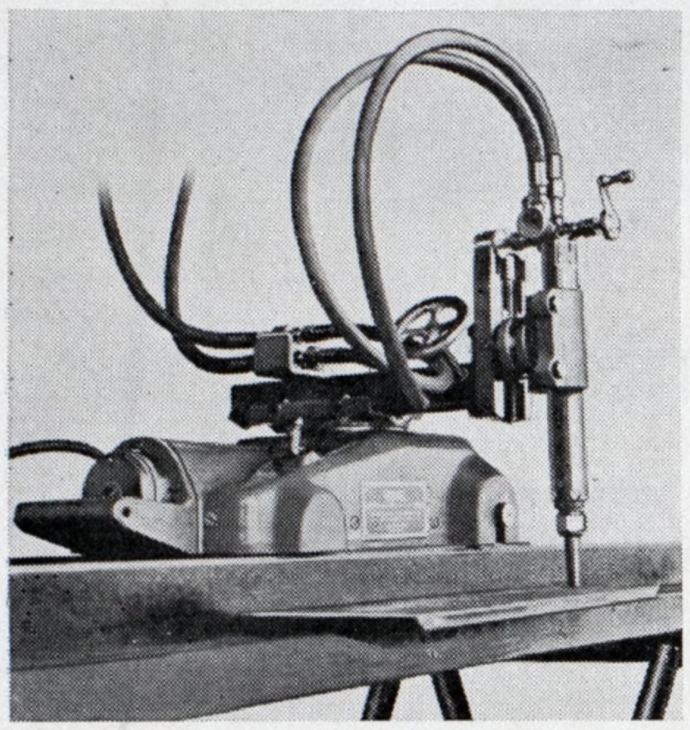
fire and distill its gases; the other to give complete burning of the gases in the combustion chamber.

In addition to fuel economy, since the air contacts nearly the whole surface of all of the bars on each side and also the radiation ribs at the back of the bearer plate, the air is heated before entering the combustion areas and thus cools the bars and the back bearer plate to prevent distortion and burning.

Bars are held in place by the step part of the bearer plate and bear against the front side of the back bearer plate, thus making it impossible to dislodge them accidentally by tools used in working the fire. At the same time each bar is free, so that in case replacements are necessary any bar may be removed and a new bar installed without disturbing the others.

Cutting Machine Developed Of Improved Type

ANNOUNCEMENT has been made of a new addition to its large line of oxy-acetylene cutting machines by the Linde Air Products Co., 30 East Forty-second street, New York. Every effort has been made to make it a perfect example of machine design. It is of rugged construction and is streamlined to facilitate both operation and maintenance. It is readily portable, and is adjustable through the entire



New Oxy-Acetylene Cutting Machine

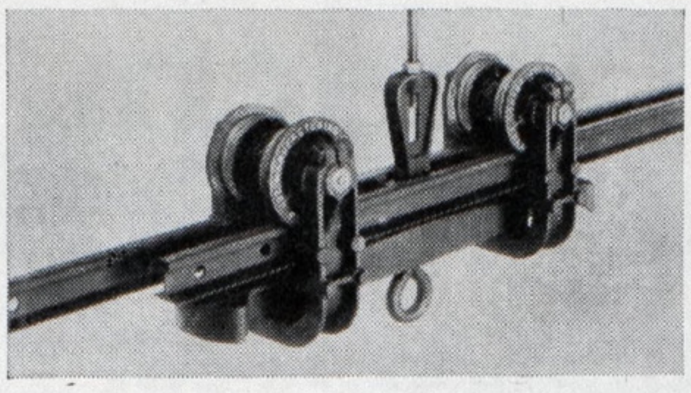
range of oxy-acetylene cutting. All the working elements are enclosed in a double cover.

The new machine will do automatic straight line cutting of practically unlimited length, straight bevel cutting, two bevels at a time if desired, plate edge preparation, circles or ring cutting of diameters up to 100 inches and the cutting of curved or irregular shapes. It should prove extremely useful to shipbuilding and ship repair yards.

The slide for the blow pipe holders is constructed so that it may be swung instantly into any horizontal position over a working arc of 250 degrees. Protractor scales gage the tilting of the blow pipes in either direction parallel to the side of the machine through 90 degrees and up to 90 degrees at right angles from the side.

Twin Rail Carries

BOTH on ships and terminals applications are being made from time to time of mechanical equipment to facilitate cargo handling. In this connection it is of interest to call attention to the twin rail system developed by Joy Mfg. Co., Franklin, Pa. As shown in the accompanying illustration this system is constructed with a swival at track tread level, providing perfect carrier alignment, maximum traction and automatic embankment on curves. The twin



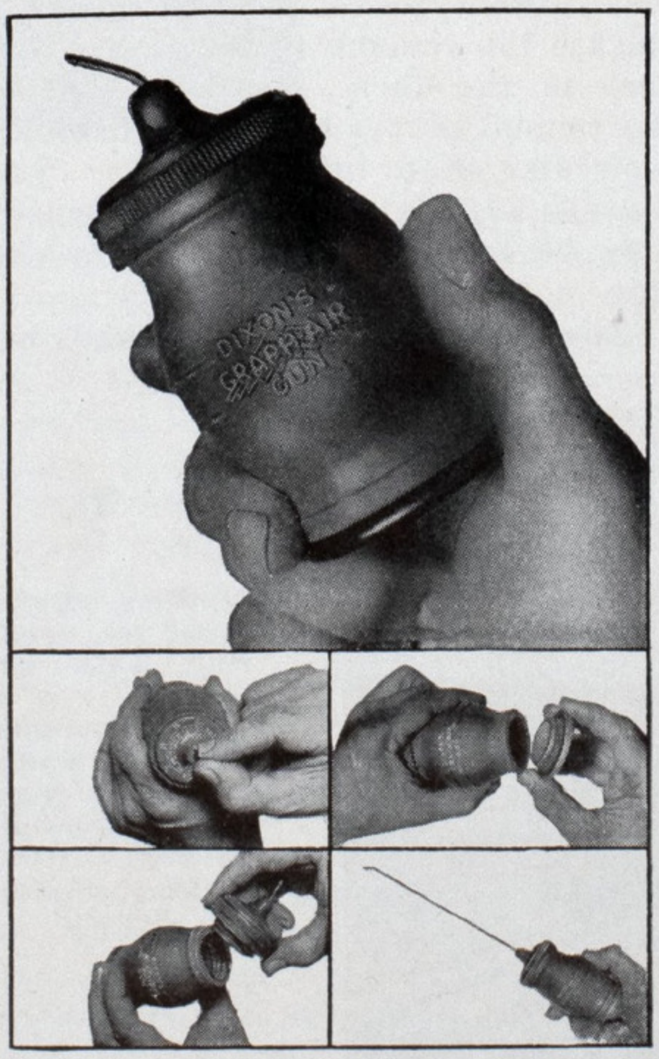
Overhead Twin Rail System

rails are supported on various types of fittings having a large factor of safety for varying loads and are constructed to meet overhead conveying conditions, as for instance in the 'tween decks of a ship.

Graphite Lubrication

FOR facilitating the use of graphite for lubrication the Joseph Dixon Crucible Co., Jersey City, N. J., has developed a practical type of air gun shown in the accompanying illustration. The new device is made of rubber. When squeezed it deposits graphite where needed in measured amounts through positively controlled air pressure. The amount of graphite is controlled by the position of the nozzle in relation to the dial on top of the gun. The nozzle may be turned to a complete shut-off position, making it possible to carry this gun in tool kits without spilling the graphite.

A plug fitted to the bottom of the gun and easily snapped in and out carries a disk of chamois for use as a burnisher. The device comes filled ready for use, but when necessary to refill, the head may be quickly unscrewed through which is inserted the easy pour chute spout which is attached to the refill cans of graphite furnished by the manufacturer.

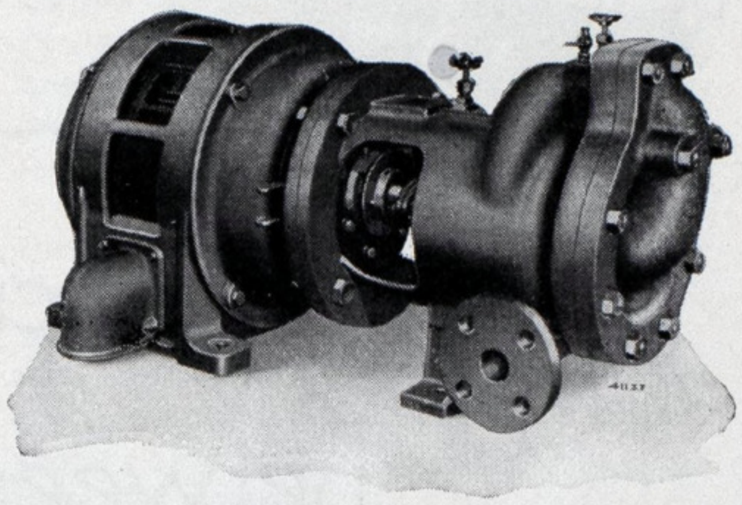


Gun for applying graphite lubrication

Motor Driven Pumps of Recent Design

AN ELECTRIC drive, or, as it is called, motor pump, of Cameron type is now being manufactured by the Ingersoll-Rand Co., Phillipsburgh, N. J., in 26 sizes ranging in horsepower from ¼ to 30 and in capacities from 5 gallons per minute to 1000 gallons per minute. One of these two-stage motor pumps, for capacities up to 125 gallons per minute against heads of 450 feet, is shown in the accompanying illustration.

Certain sizes of these pumps are



Two-stage motor pump. Capacities up to 125 g.p.m. against heads of 450 ft.

two stage units and some other sizes are fitted with a self-priming attachment, which makes them suitable for use as sump or gathering pumps.

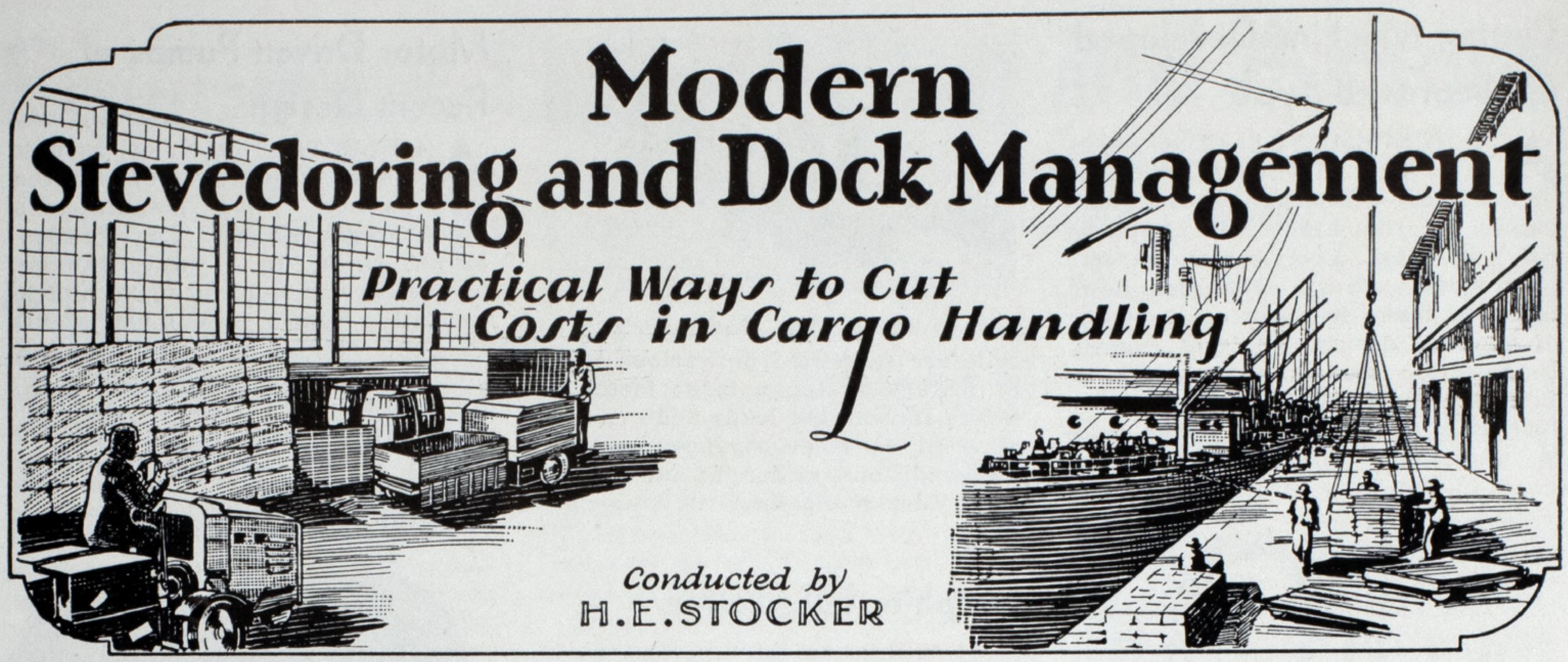
The company has issued a fully illustrated description of this type of pump, together with tables of capacity and performance data. The motor pump is a complete pumping unit, with built-in electric motor and pump rotor on the same shaft. Becaues of its perfect balance, almost no foundation is required and it can be operated equally well in any position.

New A. C. Current Welder

A NEW alternating current welder has been developed by the Lincoln Electric Co., Cleveland. The new welder is of revolutionary design, of motor generator type, taking two or three phase alternating current of standard voltages and frequencies, and converting it into alternating current of lower voltage and higher frequencies, most suitable for arc welding with either heavy coated or washed electrodes in all positions. With this innovation the the machine is of the most practical type.

Some of the advantages claimed for the new welder are: a more stable arc, less magnetic blow, easier starting of arc, less spatter loss, greater density, and finally better power characteristics from the line.

The new machine is built in portable and stationary, alternating current motor driven in two sizes.



Proper Facilities Aid Freight Interchange Between Rail and Water Carriers

By H. E. Stocker

THE Central Railroad of New Jersey has extensive facilities for interchange of freight between rail and water at Jersey City, opposite the lower end of Manhattan island.

There are 10 piers. Five are open piers with surface tracks. Two are covered piers for handling freight to and from lighters. There are two coal piers, one of the pocket type operated by a private company who leases the pier from the railroad, and one a pier equipped with two car dumpers for transferring coal from railroad cars to vessels. Five float bridges are provided for switching railroad cars to and from car floats which distribute cars through New York harbor. These marine facilities are backed up with extensive yards with a capacity of 20,000 cars.

Special equipment for handling scrap iron, steel, ore, pig iron, bulk cement and coal is provided to give good service to the patrons of the railroad and to reduce handling costs.

Cement Handling Plant

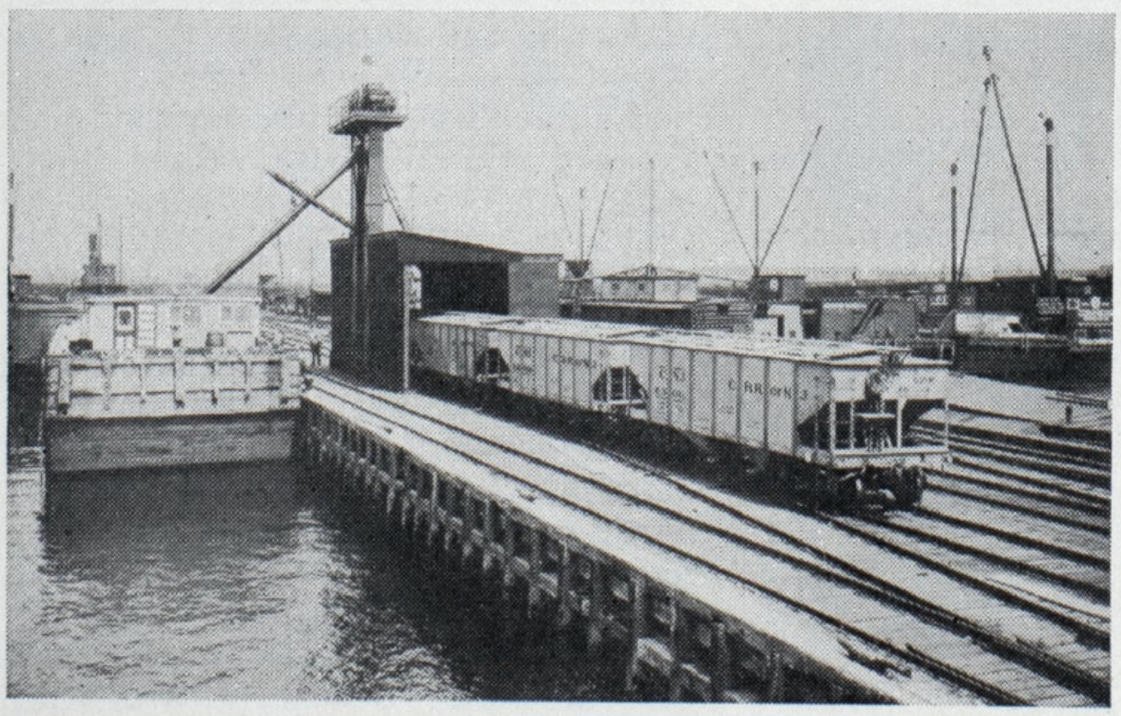
The cement handling plant consists of two units for handling bulk cement from roofed hopper cars to barges. There is a watertight car shed in which there is a hopper located under the railroad track. Two screw conveyors carry the cement to two vertical bucket conveyors which elevate the cement 45 feet above the deck of the dock. From this point the cement moves by gravity through a circular chute into the barge. The chute is adjustable so that the cement may be loaded at any stage of the tide.

The cement track has a storage capacity of 18 loaded cars which are fed to and from the hopper by an electric winch. Early first morning delivery is accomplished from cement mills located on the Central Railroad of New Jersey, Reading and connections.

Locomotive cranes of the railroad are used at Pier 7 for handling large quantities of scrap iron and steel. This is an open pier 1450 feet by 60 feet and has four surface tracks. The two tracks on the south side have two double crossovers to facilitate switching.

Steamers are loaded on both sides of the pier, both from lighters and from gondola cars. Recently when the author visited this pier, three steamers were loading scrap, two on one side of the pier and one on the other. All three steamers were breasted away from the pier with a lighter loaded with scrap and a floating crane placed between the ship and the pier.

An ocean steamer was loading into hatches one and two from lighters placed as described above. The slings, large steel pans open at one end, were loaded on the lighter with an electric magnet operated by two locomotive cranes located on the track running down the pier close to the stringpiece. These cranes obtained the electricity for the magnets through cables leading from gasoline motor generator set located on a flat car hauled by one of the cranes. The cable to the crane not hauling the



Modern equipment for handling bulk cement from roofed gondola cars to barge at the Jersey City terminals of the Central railroad of New Jersey

flat car was long enough to permit the crane being moved up and down the pier as needed.

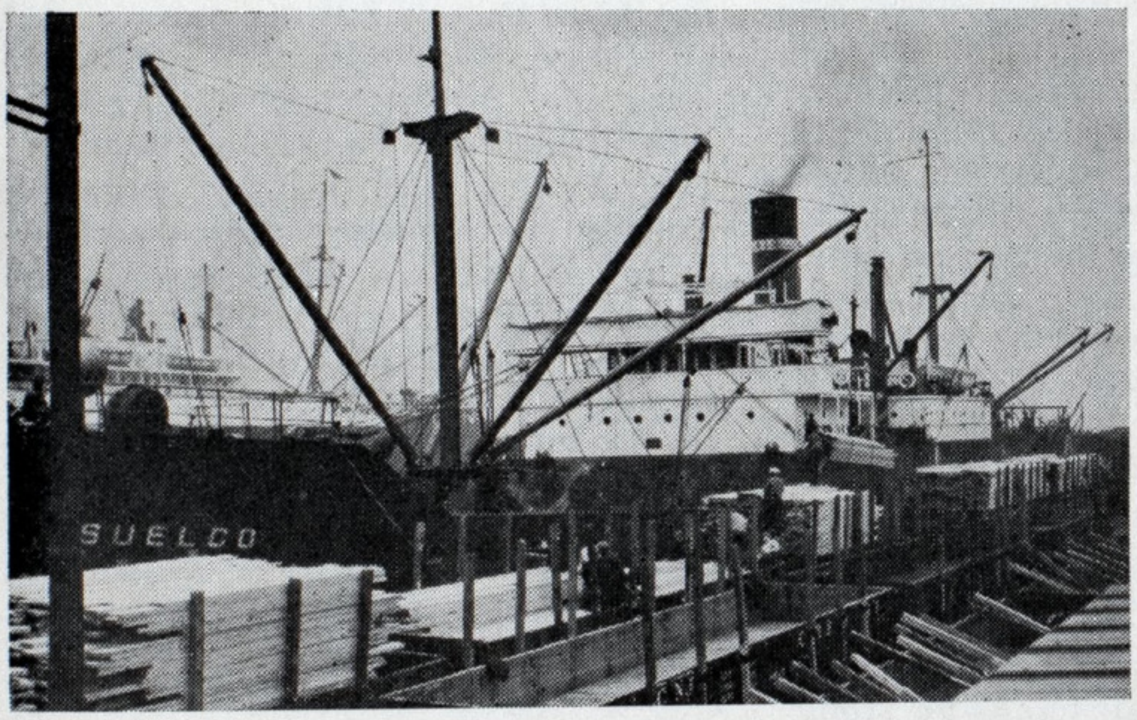
Magnet Crane Used

The scrap is for the most part of mixed character, small and large pieces. The cost of handling would be prohibitive if it were handled by hand. The electric magnet picks up a good sized load and deposits it in the sling. After a full slingload is obtained, the floating crane, which is steam operated, picks up the slingload and hoists it into the ship. The steam cranes may be moved in a complete circle and the load may be hoisted high above any obstructions on the ship. The author saw one slingload hoisted almost as high as the funnel of the ship that was being loaded.

When a lighter is to be shifted the locomotive crane is used, making a line fast to the lighter.

The magnet is also used in handling the empty slings about the lighter.

A steamer was loading scrap into hatches one and four. Number one hatch was being loaded from a lighter on the inshore side, using a locomotive crane and steam floating crane as described above. Number four



Inter coastal steamer discharging lumber from the West coast direct to railroad cars at Jersey City, N. J.

hatch was being loaded from a lighter placed on the offshore side of the steamer. A steam floating crane was being used, the crane being moored to the ship and the lighter placed on the opposite side of the crane.

Number two and three hatches were being loaded from gondola cars spotted on the second track from the stringpiece.

Two locomotive cranes on the first track handled the scrap from the gondola cars to the slingloads which were placed on the pier. The loaded slings were then hoisted into the ship.

Crane flexibility is an important point in their favor as compared with ship's gear, overlooking the difficulties of handling an electric magnet with ship's gear.

The cranes have a much greater radius of action because of their height and long reach and because they may be moved through an arc of 360 degrees.

Other bulk materials besides scrap are handled with these cranes. The author saw pyrites ore being discharged from a ship into gondola cars spotted on the second track.

Locomotive Cranes

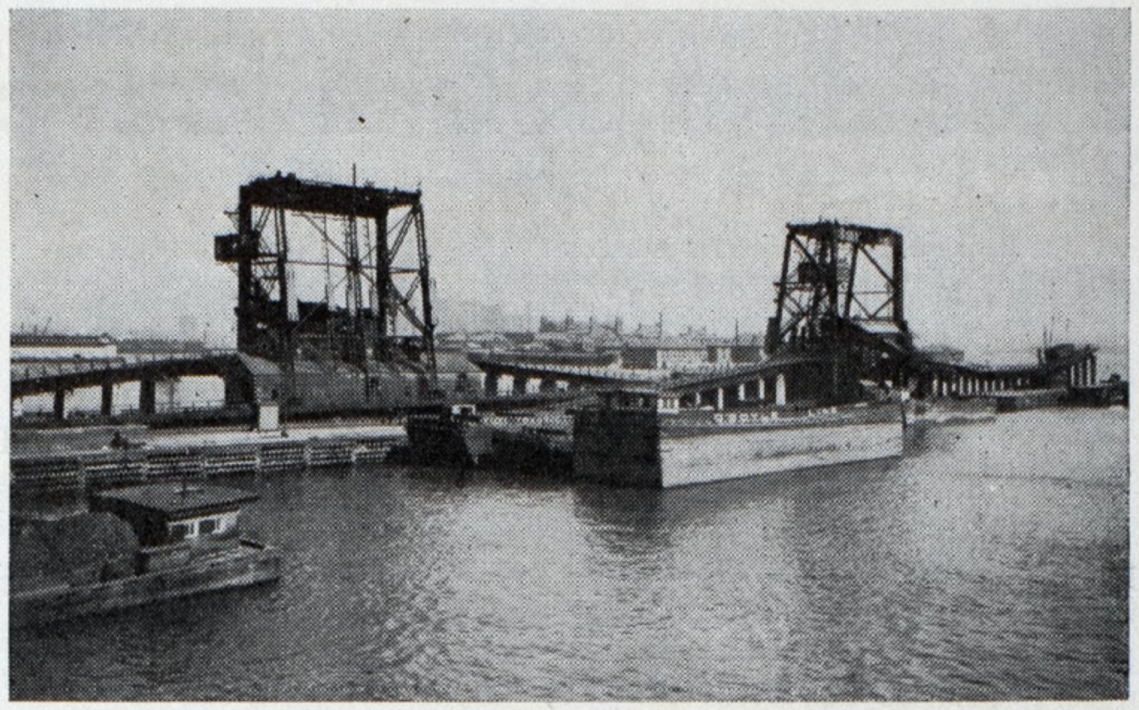
The locomotive cranes also embody the principle of flexibility. They may move back and forth as needed to effectively prepare slingloads, as well as to switch cars and to shift lighters.

Furthermore, when not in use on the pier, they may be used for loading and unloading freight in the railroad yards, using the electric magnets or slings. While the author was inspecting the float bridges of the Central Railroad of New Jersey, one of the locomotive cranes was assisting a repair gang.

A jib crane is provided for handling pig iron and other iron and steel between railroad cars and barges with the aid of an electric magnet.

The coal pier and warming sheds, representing an investment of $3,000,000 are equipped with modern equipment for the rapid and economical handling of coal from railroad hopper cars to vessels.

Two car dumpers are supplied with an aggregate capacity of 600 cars



Equipment at Jersey City, N. J., of the Central Railroad of New Jersey for dumping coal from railroad cars to barges

daily. The car dumpers are shown in one of the illustrations. The cars are pushed onto the car dumper by a powerful mule. When this operation is complete, the dumper is raised.

The cradle is lifted to a predetermined height and tipped so that the coal in the car runs out into a pan or chute extending over the coal barges below. The chute is contracted at the outer end and a telescope chute is used to direct the coal into the vessel.

The cradle returns to an upright position and is lowered by gravity to the level of the track on the incline. The empty car is bumped from the cradle by the next loaded car, then runs down the discharge track up a sharp incline which stops its forward movement. It then coasts down the incline onto another track, where it is removed to the railroad yard for movement back to loading point.

One morning recently 181 cars of coal were handled in four hours.

The coal pier is supported by storage tracks with a capacity of 1200 cars. A thawing shed with capacity for 48 cars is provided for thawing the coal during freezing weather.

The provision of the modern mechanical equipment described in this article for the economical loading of freight is an example of the desire of the Central Railroad of New Jersey to serve shippers and water carriers in the most effective manner possible, making such judicious expenditures as are necessary to this objective.

Salinity Indicators

On Jan. 3, the marine department of Sperry Gyroscope Co. received notice of award for salinity indicator equipment for 8 destroyers and 2 cruisers which are part of the navy's 1934 building program.

There is a fairly large number of ships now in commission with the Sperry salinity indicators and the general results obtained are excellent. A number of instances have been reported where condenser leaks have been discovered.

Accident, Claim Prevention on American Ships

SAFETY engineering is somewhat of a misnomer; in reality it is efficiency engineering. Accident prevention may also be termed a misnomer, in actuality it means "claims prevention." To the average business man, the financial sheet is what tells the story. The costs of accidents —claims paid—should be charged as "operating costs" against each respective department involved. Accidents to human life and to property always have their reflection in dollars and cents.

Great industrial organizations ashore have successfully applied the principles of safety engineering for many years. However, the marine industry is just beginning to realize and understand that practical safety engineering is one of the dominant factors toward successful operations.

Insurance a Fixed Charge?

Heretofore, steamship executives treated their marine insurance costs as sort of fixed charges. Almost without exception, ships' masters and officers knew nothing about the basic principles of marine insurance and were content to say: "Let the insurance company pay—it won't cost our steamship company anything" or words to that effect. In the meantime, claims increased and premiums mounted in proportion, much to the alarm of the steamship directors who scanned the balance sheets carefully.

In the perspective of our general experience, there are certain safety landmarks that stand out clearly. There are three of these fundamentals which are often grouped together as of major importance:

1. Mechanical safeguards.
2. Personnel safety education and supervision.
3. Engineering revision.

These elements should be grouped together, for there was a day when each of them was hailed as a panacea for all our accident troubles.

But the accidents continued. It was then the principle of "engineering revision" was developed. Of course, we did not recommend or advocate the abandonment of either mechanical, safeguarding or sane and persistent personnel education, but it was necessary to add the third element to a balanced safety program.

Out of the dark, came the dawn and we awakened to find that the ship safety movement had started from the bottom instead of from the top. Hence the necessity for engineering revision.

But there is a basic fairness in men's minds. If it was unfair to charge the worker with responsibility for accidents because he must look to a higher authority for knowledge and direction, was it not equally unfair to place this responsibility solely on the department head?

The answer must be given by the "steamship management." Unless management not only gives authority but also assumes full responsibility for the safety program and its results, the safety campaign can never reach complete success. If there is enthusiasm and executive direction at the top, then each master, department head, and member of the crew will receive inspiration from the owner's attitude.

An intelligent accident prevention program must inevitably reflect itself in claim's prevention. At the same time, the general ship efficiency improves. There is less damage to ship and cargo. Less of the ship's stores are wasted. Crew changes are cut down and the accident risk from new men is lessened. Cargo is better looked after, holds are inspected better, and a feeling of good will prevails that is missing in the "grouchy" organization and ship where everyone goes about with a chip on his shoulder. There is a genuine "esprit de corps." It is simply a problem in the field of human mental mechanics, which when once solved, all hands go along their charted course without difficulty; otherwise, accidents, claims, losses, etc. will inevitably continue to pile up.

Therefore, management is justified in making safety an integral part of its entire organization. Intelligent planning, organization co-ordination and increased efficiency are bound to result in economic welfare. This phase is most important when we consider that approximately 85 per cent of all American vessels are now "overage" with their efficiency curves drifting rapidly downward. Almost anything can happen at any time, hence the exercise of that element known as "due diligence" is more necessary than ever before in order to protect the owner's interests. At the same time, underwriting risks increase greatly with each vessel's age.

Hence, an efficiently administered accident prevention program may be a decisive factor in claims prevention. Ways and means for the prevention of false and fraudulent claims are pointed out. Ship's safety committee meetings become forums for the discussion of both accident and claims prevention measures, accidents are immediately investigated, and the true facts of the case determined. In this manner the interests of the shipowners become fully protected. Otherwise, experience has proven that a certain class of so-called "negligence lawyers" will succeed in constructing circumstances involving possible ship liability which may not have existed originally, and to the manifest detriment of the owner's interests.

A well known marine authority has accurately stated the case as follows:

"No self-respecting American shipowner objects to proper compensation for the employe who is injured in the line of duty when it can be shown that responsibility for the injury rests upon the owner. But the business of collecting damages has assumed such proportions that it seems the owner is justified in sometimes wondering whether he is working to support himself and his employes or for the benefit of that branch of the legal profession which, it is conservatively estimated ultimately receives at least one half of the more than a million dollars paid out annually by American steamship companies in court awards and legal fees in personal injury litigation."

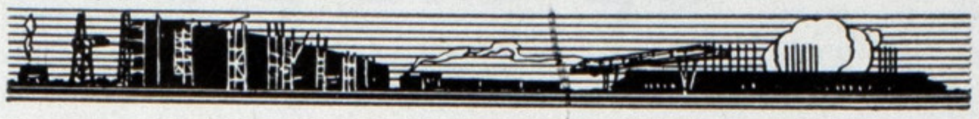
"To solve this problem which is constantly growing more serious, some shipowners have urged the amendment of section 33, merchant marine act, 1920; while another school of thought is of the opinion that a more equitable solution, both for the seaman and the shipowner, is to be found in the enactment of employes' compensation legislation for seamen, patterned after the United States longshoremen's and harbor workers' act of 1927."

Compensation Laws

The steamship owners must give serious consideration to the amendment of the present laws or the adoption of compensation laws. The system as now existing is not only unfair to the employer but grossly unfair to the employe. By allowing the system to continue is encouraging unethical practices among professional men and a waste of dollars and cents in business, namely American steamship operation, which is now pressed to overcome the operating differential. We hear a lot about the high cost of operating ships under the American flag. It must be remembered that foreign owners do not have this problem to contend with. They have other systems to compensate a seaman for his injury, and in our opinion a more equitable system, both for the employe and the employer.

Abstract of paper on *Marine Problems —Claim Prevention in Connection with Accident Prevention,* by Capt. E. C. Holden Jr., United States P. & I. Agency Inc., New York, presented at Cleveland, Oct. 6, 1934, before the twenty-third annual safety congress and exposition.

Useful Hints on Cargo Handling



SUGGESTIONS are often made and acted upon for changes in construction to eliminate what are considered hazards. This Capt. F. E. Ames, Lykes Bros. Ripley Steamship Co., believes is an approach to a solution of the problem from the wrong angle.

To determine whether or not any existing condition is a hazard to safety, it should only be necessary to establish the number of accidents caused by that condition and if the results of the analysis show that a hazard does exist then it is well enough to recommend changes in construction. In other words, in safety work, as in all other activities it will pay to look before you leap.

Handling Newsprint

THE truth of one of the fundamental principles of materials handling, that "economy in handling materials is secured by not handling them," is demonstrated in the methods used by the New York Dock Co. to handle newsprint paper in rolls.

In unloading the cars and stowing the rolls in a warehouse, those rolls destined to be stood on end on the floor are rolled out of the cars spotted near the entrance to the warehouse and are picked up by special newsprint paper trucks. These trucks scoop up the heavy rolls, transport them to their proper places and deposit them on end on the floor.

Lifting Bulk Materials

IN HANDLING bulk materials consideration must be given to the weight per cubic foot and the structure. Snow, for example, weighs 25 pounds per cubic foot, while lump manganese ore weighs 300 pounds per cubic foot. A bucket which would handle the ore economically would not be satisfactory for snow or many materials of lighter weight.

As to the structure of materials, some are fine as powder, some in 20-inch lumps, some are in mixtures of lumps and powder. It is important to consider whether the materials are in a loose or compact state.

These conditions have an influence on the resistance offered to the penetration of the bucket into the pile of material. The penetration of the bucket also is affected by the place from which the materials is being removed.

Crushed gypsum rock, handled from a stock pile where it is free to roll as the bucket closes, offers much less resistance to penetration than the same rock being dug from the hold of a boat where the voids have been reduced by settling and where the freedom to roll is restrained by the pocketing effect of the hatches.

THIS page is being devoted to short items on all matters having to do with the more efficient turn-around of ships. These items are intended to be of a helpful nature.

We will welcome for this page brief descriptions, illustrated if possible, of any better or safer way of performing any function in cargo handling. Also, any questions submitted will be answered by the editor.

A three cubic yard bucket for handling run of mine coal can be as light as 6500 pounds without sacrificing capacity, but in order to pick up three cubic yards of open hearth slug, from a skull cracker pit, a bucket weight of about 18,000 pounds is needed.

Keep in mind that in handling bulk materials, the bucket weight should be considered as a variable to be established only by its relation to the character of material handled.

Gravity is the force which enables a bucket to penetrate a pile of material and this force is in direct relation to the weight of the bucket. It can never be more than the weight of the bucket and in practice is less because the amount of effort required to close a bucket (that is the upward pull on the closing line) is in the direction which opposes the downward pressure at the cutting lips of the bucket. Buckets which carry their own motor do not have this tendency to lift out of the material while closing and they dig themselves out of the pile of material.

Unloading Coal from Barges

COAL is unloaded from either barges or steamers at a power plant dock by use of two traveling steeple coal towers, each with a capacity of 3500 short tons per hour. These steeple towers are fitted with three-ton grab buckets working on a 60-foot boom, which lifts the coal and deposits it in receiving hoppers.

From the receiving hoppers the coal is fed by means of conveyors to coal crushers which reduce it to the desired size.

After crushing, the coal is delivered by chutes to belt conveyors to hoppers which in turn feed two skip hoists. These skip hoists have buckets of five tons capacity and are operated in vertical shafts by means of electric hoists. These hoists deliver the coal to hoppers from which it is fed to belt conveyors which carry it to the storage bunker. From the bunker the coal passes through driers, thence to pulverizers and in pulverized form is transported through pipe lines to the boiler house.

A drag line scrapper installation was made at this plant to take care of outdoor coal storage.

Where there is a network of tracks or where free ground space is limited, the locomotive track crane proves very useful. When flexibility of movement is slight, where clearance between buildings is slight, where there is free and dependable ground and where it is necessary to walk close up to a job, the crawler type crane is the best.

The Locomotive Crane

THE locomotive crane is so designated because it is self-propelled. They are extensively used in outdoor operations. They range in capacity up to 160 tons with booms as long as 170 feet. Various kinds of buckets, magnets, slings and similar gear are used in connection with these cranes.

The type of power varies with the service and location. It may be steam, gasoline or electric and it may be operated on tracks or otherwise.

Steam operated cranes are in some cases equipped with motor generator sets operated by steam from the cranes boiler, the electricity being used for handling material such as scrap iron, pig iron with electric magnets.

Gasoline operated cranes are mounted on railroad tracks or on a caterpillar tractor.

Electric cranes are used usually in industrial plants or on piers and docks where electric power is available. Some light capacity cranes obtain their power from storage batteries carried on the crane.

Capacities of cranes at various radii may be increased 10 to 40 per cent by using rail clamps or outriggers.

Up and Down the Great Lakes

Bulk Freight — Lake Levels — Ore Shipments
Canadian Grain—Coal Movement—Winter Moorings

FREIGHT passing through the American and Canadian canals at Sault Ste. Marie, Mich., for the month of December amounted to 299,970 tons as against 172,313 tons for December, 1933. Total traffic for the season of 1934 through these canals amounted to 42,348,812 tons, an increase of 1,945,414 tons over the traffic in 1933. Iron ore was heavier by 719,274 tons, increasing from 22,226,025 tons to 22,945,299 tons, and bituminous coal increased from 7,958,524 tons to 10,148,747 tons, or by 2,190,223 tons. Wheat shipments, however, declined from 198,722,803 bushels to 173,034,611 bushels, or by 25,688,192 bushels (or 770,645 tons). Other grains increased from 40,145,576 bushels to 46,499,810 bushels. Flour decreased by 956,203 barrels.

Opening and Closing Dates

The Canadian locks of the Sault Ste. Marie canals were opened May 9, and closed on Dec. 15, one day earlier than in 1933, a season of 221 days. The United States locks opened April 29, and closed on Dec. 15, a season of 231 days.

The Welland Ship canal was opened on April 17, 1934, thirteen days later than in 1933, and was closed on Dec. 15. A new high record of 9,281,182 tons was set in freight transiting the canal during the season of 1934. This exceeded the previous record made in 1933 by 87,052 tons.

The above record was made despite a light movement of wheat and flour; wheat shipments amounting to only 1,787,288 tons, or 59,576,266 bushels, as against 94,438,066 bushels in 1933. This decrease of 34,861,800 bushels of wheat was due to several factors: There was a decrease of 25,688,192 bushels down the Sault Ste. Marie canals, of which Canadian wheat accounted for 7,705,753 bushels; also, shipments of Canadian wheat to Buffalo and other Lake Erie ports were greater than in 1933 by 12,209,341 bushels, and United States wheat down the Welland ship canal decreased by 181,566 bushels. A decline to 87,802 tons in flour shipments was noted. Corn also decreased by 34,708 tons. All other grains, however, showed increases, barley by 113,517 tons and rye by 100,430 tons. Bituminous coal increased by 387,091 tons; coke by 116,943 tons; iron ore by 356,123 tons; pulpwood by 152,114 tons; gasoline by 98,052 tons; and iron and steel by 56,913 tons.

The St. Lawrence canals opened April 18, 1934, four days later than in 1933, and closed Dec. 13, 1934. Total traffic using the canals during the season was 291,012 tons less than in 1933, declining from 6,951,064 tons to 6,660,052 tons, mainly due to light shipments of wheat, which decreased to 1,087,379 tons, or 36,245,966 bushels. Flour also decreased by 62,277 tons and paper by 13,026 tons, while pulpwood increased by 197,691 tons, bituminous coal by 236,268 tons, gasoline by 77,354 tons, petroleum and oils by 61,484 tons, barley by 120,251 tons, corn by 10,740 tons, oats by 53,748 tons and rye by 94,766 tons.

Total traffic on all Canadian canals for the season of 1934 amounted to 18,071,238 tons, or 709,251 tons less than in 1933. Although the freight through the Sault Ste. Marie locks increased, a smaller percentage used the Canadian locks, causing a decrease of 541,549 tons. The St. Lawrence canals also showed decreases, which more than offset the gains made by the other canals.

December Lake Levels

The United States Lake survey reports the following monthly mean stages of the Great Lakes for the month of December, 1934, determined from daily readings of staff gages.

Lakes	Feet Above Mean Sea Level
Superior	602.85
Michigan-Huron	577.90
St. Clair	572.90
Erie	569.43
Ontario	242.86

Lake Superior was 0.11 foot lower than in November and it was 0.27 foot above the December stage of a year ago.

Lakes Michigan-Huron were 0.15 foot higher than in November and they were 0.17 foot above the December stage of a year ago, 1.00 feet below the average stage of December of the last ten years.

Lake Erie was 0.09 foot lower than in November and it was 0.69 foot below the December stage of a year ago, 1.73 feet below the average stage of December of the last ten years.

Lake Ontario was 0.05 foot higher than in November and it was 0.51 foot below the December stage of a year ago, 2.08 feet below the average stage of December for ten years.

Traffic Through the Canals

According to figures issued by the United States engineers, freight transiting the canals at Sault Ste. Marie, Mich., and Ontario for the season of 1934 was 1,940,238 short tons greater than the amount during the season of 1933. Registered tonnage of vessels transiting these canals during 1934 was also greater by 1,424,300 net tons.

The total freight in short tons transiting these canals during the season of 1934 was 42,248,131 compared with 40,307,893 short tons during the season of 1933. There was a 61 per cent increase in passenger carriage, 33,636 passengers transiting the canals during 1934, compared to 20,943 during the year 1933.

Of the total freight transiting the canals in 1934, 30,454,708 short tons moved eastbound while 11,793,423 short tons of freight moved westbound. All but a comparatively small part of this traffic, 40,520,404 short tons, moved through the United States canal. The remaining 1,727,727 short tons moved through the Canadian canal. The movement eastbound through the United States canal was 29,234,807 short tons and westbound 11,285,597 short tons.

Winter Mooring Lists

For anyone who may be interested, a complete winter mooring list, names of vessels and locations during the winter lay-up has been compiled by the Great Lakes Towing Co., Cleveland.

A list of vessels whose winter moorings have been reported and approved has also been prepared by the United States Salvage Association Inc., Guy A. Myers, principal surveyor, Great Lakes district, Cleveland.

Canadian Grain Shipments For the Season of 1934

For the season of navigation 1934, May 3 to Dec. 12, 1023 cargoes of grain were shipped from Fort William and Port Arthur, Ont., via lake vessels. Of these 839 cargoes were in Canadian vessels and 184 cargoes in United States vessels.

The total quantities shipped during the season were as follows: wheat, 153,931,619 bushels; oats, 13,503,433 bushels; barley, 13,332,-792 bushels; flaxseed, 328,800 bushels; rye, 689,283 bushels; barley malt, 10,445,690 pounds; mixed feed, oats, groats, 530 tons; and screenings, 47,626 tons.

This compares with the following figures for the season of 1933: wheat, 154,962,732 bushels; oats, 12,120,998 bushels; barley, 4,075,-822 bushels; flaxseed, 1,196,715 bushels; rye, 2,220,255 bushels; barley malt, 28,716,260 pounds; mixed feed, oats, groats, 1037 tons; and screenings, 42,227 tons.

Of the total amount of wheat shipped during the season of 1934, 92,276,412 bushels went to Canadian ports and 61,655,207 bushels to United States ports. Of the oats, 10,891,740 bushels went to Canadian ports, and 2,611,693 bushels to United States ports. The barley was divided up, 7,012,735 bushels to Canadian ports and 6,320,057 bushels to United States ports.

Lake Iron Ore Shipments

Shipments of iron ore for the entire season of 1934 ended at the same figure as for the season up to Dec. 1, or 22,249,600 long tons as compared with 21,623,898 tons for the season of 1933.

Shipments of iron ore by rail from Lake Erie ports to furnaces during the month of December amounted to 93,387 tons as compared with 82,691 tons during December, 1933.

For the entire season of 1934 to Jan. 1, the shipments of iron ore from Lake Erie ports to furnaces amounted to 11,192,155 tons as compared with 11,993,278 tons for the entire season of 1933. The balance of ore on dock at Lake Erie ports was 5,155,331 tons on Jan. 1, 1935, as compared with 5,326,674 tons on Jan. 1, 1934.

Coal Shipments in 1934 Highest Since 1930

In the January issue of MARINE REVIEW figures were reported on the total movement of bituminous coal, cargo and bunkers, on the Great Lakes for the season up to 7 a. m., Dec. 17, 1934. From that time to Jan. 1, 1935 only 68,792 short tons of cargo coal and 3124 tons of bunker coal were moved.

The total movement of bituminous coal for the entire season of 1934 up to Jan. 1, 1935 in short tons (2000 pounds) was 34,869,536 for cargo and 1,101,610 for bunkers, making a total for cargo and bunkers of 35,971,146 short tons. This compares favorably with the season of 1933, cargo, bunker and total, respectively, of 31,351,353 tons, 982,840 tons and 32,333,393 tons.

Anthracite coal shipments on the lakes for the year 1934 amounted to 541,999 long tons. For the year 1933 the amount was 379,733 long tons. In 1932 the amount was 262,480 long tons, and in 1931 the amount was 679,525 long tons, or 137,526 long tons greater than during 1934.

Bulk Cargo Movement on the Great Lakes

Ore, Coal, Grain and Stone Shipments During the Past Twenty-two years

Year	Iron Ore	Coal	Coal*	Grain	Stone	Total
1934	24,919,552	34,869,536	607,039	7,951,145	7,392,218	75,739,490
1933	24,218,766	31,351,353	425,301	8,713,127	6,664,629	71,373,176
1932	3,996,143	24,563,391	293,978	8,890,409	3,928,840	41,672,761
1931	26,283,920	30,415,291	761,068	9,479,640	7,208,946	74,148,865
1930	52,172,940	36,839,923	1,232,137	9,851,229	12,432,628	112,528,857
1929	73,029,152	37,933,249	1,321,329	10,021,099	16,269,612	138,574,441
1928	60,458,579	33,402,121	1,420,881	16,372,116	15,677,551	127,331,248
1927	57,239,992	32,851,681	1,918,392	14,692,536	14,033,376	120,735,977
1926	65,562,398	28,159,076	2,857,917	12,087,316	12,628,244	121,294,051
1925	60,571,054	26,330,843	1,793,516	13,320,346	11,351,948	113,367,707
1924	47,738,401	23,157,051	3,094,088	15,222,787	9,225,624	98,437,951
1923	66,121,108	29,646,724	3,480,471	11,850,446	9,920,422	121,019,171
1922	47,726,766	18,522,142	1,346,783	14,267,020	7,592,137	89,454,848
1921	24,976,813	22,412,380	4,248,272	12,470,405	3,925,705	68,033,575
1920	65,550,493	22,408,355	4,001,355	6,736,348	7,821,980	106,518,531
1919	52,838,682	21,725,377	4,710,727	6,091,701	6,407,285	91,773,772
1918	68,495,540	28,153,317	3,948,705	6,548,680	7,467,776	114,614,018
1917	69,998,769	26,828,756	4,689,993	7,161,716	6,748,801	115,428,035
1916	72,502,302	24,692,936	4,210,575	10,555,975	5,553,927	117,515,715
1915	51,877,060	21,507,374	4,357,324	11,098,815	3,854,106	92,694,679
1914	35,864,525	21,383,617	4,487,682	9,793,850	No Record	71,529,674
1913	54,958,935	26,830,347	5,313,753	11,697,160	No Record	98,800,195

*—Anthracite coal. The other column headed "Coal" is for bituminous coal and does not include bunkers.
NOTE:—Figures given in this table are in short tons (2000 pounds). By custom, iron ore is always shipped and usually referred to in long tons (2240 pounds).

THE bulk cargo movement on the Great Lakes during 1934 proved to be somewhat of a disappointment. Even though it exceeded the 1933 movement, better things had been expected. Increase in total bulk cargo movement in 1934 over that in 1933 was only 4,366,314 short tons, or 6.1 per cent. Of this increase iron ore accounted for only 700,-786 short tons or about 16 per cent. By far the greatest increase was in bituminous coal which amounted to 3,518,183 short tons or 80.6 per cent of the total increase. Anthracite coal also showed a substantial increase, and so did stone. Grain was the only commodity showing a decrease.

It is interesting to note that the total bulk cargo movement during 1934 was greater than the movement for any year since 1930, it being 1,590,625 short tons over the total for 1931. The above table gives a comparison of the total movement of the principal bulk commodities on the Great Lakes during the past twenty-two years.

It is reasonable to say that a continued improvement in the bulk cargo movement is now anticipated for the year 1935. The extent of this increase, however, is uncertain. It depends on the continued improvement in business generally and in the heavy industries, particularly.

Liner Added to Service Under American Flag

The former Red Star liner BELGENLAND, of 39,935 tons displacement, has been acquired by the Panama Pacific line. Her registry will be changed from British to American and she will be rechristened COLUMBIA. She will be the second largest merchant vessel under the American flag, and will begin her career as an American ship under the command of Capt. John F. Jensen, until recently commander of the PRESIDENT ROOSEVELT, with a series of 9-day winter cruises to Nassau, Miami and Havana on Feb. 16.

In addition to these cruises, two spring cruises have been announced by the Panama Pacific line. The first will be a pre-Easter cruise to Bermuda, sailing from New York, April 12. The COLUMBIA will remain two full days at Bermuda and return to New York on the morning of April 18.

Captain Jensen is a well known and popular American skipper. He has been at sea 45 years and for 18 years he has been in command of ships of the Red Star, American line, Baltimore Mail, and United States lines. He has been associated with the International Mercantile Marine-Roosevelt Steamship Co. since 1906.

The chief officer of the COLUMBIA will be Fred A. Dear, former chief officer of the Panama Pacific liner VIRGINIA, in the New York-California service. Patrick J. Quinlan, chief engineer of the PENNSYLVANIA since 1932, will become chief engineer of the COLUMBIA, and Charles H. Heidorn, chief steward of the PRESIDENT ROOSEVELT, will head the steward's department of the big new liner.

Appointed Naval Architect

J. F. Metten, president of the New York Shipbuilding Corp., Camden, N. J., recently announced the promotion of T. H. Bossert to the position of naval architect in charge of the construction drawing office and directly responsible for progress on working plans. Mr. Bossert had been assistant naval architect since 1929.

E. H. Rigg continues as naval architect in charge of design, assisted by J. W. Thompson, both having served for a long period in these capacities.

Mr. Bossert graduated from Central High school at Philadelphia. After a brief period in a law office he became an apprentice draftsman at the New York Shipbuilding Corp., first working on naval plans. During the course of his apprenticeship, he entered the Franklin Institute and graduated in its engineering course.

He has had a diversified experience including work at Cramps and, during the war, on the Hog Island class ships. His engineering contributions to merchant shipping cover a wide range including vessels for the Grace and Shawmut lines and diesel freighters for the American Hawaiian Co.

For a time after the conclusion of the war program of merchant shipbuilding he served as superintendent in charge of light steel construction with the Pennsylvania railroad. On the completion of this work he returned to Cramps as assistant in charge of steel plans for ships building at that yard.

When the Cramp yard closed, Mr. Metten brought Mr. Bossert with him as a member of the staff of the Marine Engineering Corp., which successfully designed naval ships constructed in several yards.

In 1929 he joined the staff of the New York Shipbuilding Corp. as assistant naval architect and by promotion from the latter position he now becomes naval architect in charge of the construction drawing office. Mr. Bossert is a member of the American Society of Naval Architects and Marine Engineers.

T. H. Bossert

First Arc-Welded Dredge

With reference to the statement in connection with the clam shell dredge ALABAMA, page 26, December issue of MARINE REVIEW, to the effect that this vessel, built by Ingalls Iron Works, is said to be the first all-arc-welded dredge ever built, attention has been called to the small suction dredge completed in December, 1931, by the United Dry Docks Inc., for the department of public works, Newark, N. J. This suction dredge was built on the patented truss-weld system and, therefore, preceded the ALABAMA as an all-arc-welded dredge by some two and a half years.

Los Angeles Business Up Port Traffic Gains

Showing an increase of $91,691,000 in value over 1933, total commerce through Los Angeles harbor for 1934 amounted to $782,917,000. The gain for the past year was the fourth annual increase and brings the port within striking range of the billion dollar peak years of 1929 and 1930. Foreign trade at Los Angeles for 1934 totaled 4,927,500 tons, valued at $132,551,600, an increase of 1,035,000 tons and $53,436,460 over 1933.

Ship arrivals in Los Angeles harbor during 1934 totaled 6940 vessels, as compared with 6531 in 1933 and 6206 in 1932.

Frank P. Ranahan Dies

Frank P. Ranahan, 53, closely identified with Great Lakes shipping interests for many years, died Dec. 30, 1934 after a major emergency operation. At the time of his death, Mr. Ranahan was head of the Buffalo Marine Construction Corp. and held other interests in several lake freight lines.

He was born in Port Huron, Mich., and first went to work in a shipyard near that city. Continuing in shipbuilding he worked in a number of yards on the Great Lakes and on the Atlantic seaboard, and eventually became superintendent at the Bath Iron Works, Bath, Me.

Returning to the Lakes, he joined the Buffalo Drydock Co., as foreman in the drydock. Sometime afterwards he organized, with the late Edward Gaskin, the Buffalo Marine Construction Corp.

Surviving him are his widow, two daughters, and four sons, Edward E., Paul J., Frank P. Jr., and Robert Ranahan.

Big Increase Noted

Panama Pacific line, operating the CALIFORNIA, PENNSYLVANIA and VIRGINIA, in the intercoastal trade, reports a gain of almost 100 per cent in first class passenger travel during 1934.

On west-bound voyages, from early January until Dec. 15, 1934, the line carried 4497 passengers. The number eastbound was 2664, making a total of 7161 as compared with a total of 3617 passengers for the same period during 1933. The above figures apply only to first class passengers.

Charles E. Ross, consulting naval architect, marine engineer and marine surveyor, New York, died in that city on Jan. 11 at the age of 68.

World Shipbuilding Increase Over Year Ago, 65.3%

A DECLINE of about 4½ per cent in world production of merchant vessels during the closing months of 1934, is shown by the returns of Lloyd's Register of Shipping for the three months ending Dec. 31, 1934.

In contrast with conditions a year ago, however, there is a gain of 494,445 gross tons, 65.3 per cent.

The present total of world construction is 1,251,722 gross tons, and of this amount, 47.7 per cent is being built in Great Britain and Ireland, 1.6 per cent in the United States, and the remaining 50.7 per cent in the other shipbuilding countries, taken as a group.

The contrast between the quarter just ended and the previous one is shown in the following table of gross tonnage:

	Dec 31, 1934	Sept. 30, 1934
Great Britain & Ireland	596,834	604,296
United States	20,103	22,225
Other countries	634,785	684,866
World total	**1,251,722**	**1,311,387**

While the total of new construction in Great Britain and Ireland during the quarter just ended, showed a gain of 17,000 gross tons over the previous quarter, the new work started in the other maritime countries showed a decline of 71,000 tons.

The contrast between the new work begun and the shipping launched during the last two quarters is shown in the following table of gross tonnage:

	Dec 31, 1934	Sept. 30, 1934
New Work:		
Great Britain & Ireland	93,428	76,911
Other countries	108,254	179,035
World total	**201,682**	**255,946**
Launchings:		
Great Britain & Ireland	205,792	183,422
Other countries	177,855	117,166
World total	**383,647**	**300,588**

Returns show an increase in construction of steam and motor tankers of 1000 gross tons each, and upwards. The tonnage of such vessels now under way is nearly three times as great as it was a year ago. Germany and Denmark, especially, increased their volume of tanker production during the quarter just ended.

A comparison of tanker production during the past two quarters is given in the following gross tonnage table:

	Dec 31, 1934	Sept. 30, 1934
Great Britain & Ireland	94,000	101,500
Germany	57,450	38,150
Denmark	52,900	44,100
Holland	40,270	40,270
Sweden	34,700	43,200
United States	18,600	19,842
Other countries	40,150	37,650
World total	**338,070**	**324,712**

Of the total of 338,070 gross tons of tankers now being constructed, 287,670 tons are motor vessels.

At this time last year, the total production of tankers of all types was only 117,608 gross tons.

Motorship Construction

Some decreases in the volume of motorship construction are reported for the last quarter. Japan's production of this type of vessel fell off sharply. Gains were made, however, by Great Britain and Ireland, Germany, Denmark. The comparative figures for the past two quarters are as follows, in gross tons:

	Dec 31, 1934	Sept. 30, 1934
Great Britain & Ireland	294,137	291,517
Denmark	74,950	72,588
Germany	69,211	59,401
Japan	66,215	120,350
Sweden	60,000	64,425
Holland	41,698	64,100
Italy	37,000	37,000
United States	503	2,625

Of all types of merchant ships being constructed, motor vessels now represent 55.8 per cent, as compared with 58.3 per cent in the quarter ended Sept. 30 last. The present motorized tonnage of 698,000 tons, however, compares with only 418,000 tons under way at this time last year. At present, nearly 150,000 tons more of motor ships are being built than of all other types of vessels combined.

For all countries combined, the comparison in gross tons, in types of construction during the past two quarters is as follows:

	Dec 31, 1934	Sept. 30, 1934
Motor vessels	698,768	764,909
Other types	552,954	546,748
Total	**1,251,722**	**1,311,387**

At this time last year, Great Britain and Ireland were devoting only about 33 per cent of their construction program to motorized vessels; but that proportion has now increased to 49.3 per cent. For the other countries, taken as a group, motorships represent 61.8 per cent of the total construction, as compared with 67 per cent at the end of last September, and over 70 per cent a year ago.

The tonnage of the various types building in these groups of countries at the end of December last is given in the following tonnage table:

	Great Britain & Ireland	Other Countries
Motor vessels	294,137	404,631
Other types	302,697	250,257
Total	**596,834**	**654,888**

Machinery Under Construction

During the quarter just ended there was a decline in the total horsepower of all oil engines being built throughout the world for marine use. The aggregate of 729,469 indicated horsepower, reported at the end of the September quarter, fell to 697,204. For Japan there was a decrease from 112,335 to 90,655; for Sweden, from 82,732 to 80,435; for Denmark, from 50,100 to 43,700; for Holland, from 61,537 to 27,593; and for the United States, from 9005 to 6830. For Great Britain and Ireland, there was an advance, from 249,940 to 261,266; for Germany, from 51,120 to 62,135, and for Italy, from 53,500 to 80,700.

Steam turbines being constructed throughout the world showed an inincrease in aggregate shaft horsepower, from 616,389 at the end of September last, to 646,601 at the end of December. Germany's total gained sharply, advancing from 48,759 to 94,451; while the aggregate for Great Britain and Ireland dropped from 314,880 to 291,400. France's total of 224,300 remained unchanged, as did the 8000 figure of the United States.

For steam reciprocating engines building throughout the world for marine use, there was a decline during the last quarter, from 122,698 indicated horsepower to 102,033. Great Britain and Ireland's total of 87,673 decreased to 77,858.

Several changes in the relative ranking of the various leading shipbuilding countries occurred during the quarter just ended. Great Britain and Ireland continue to hold the lead, with over 450,000 gross tons more of shipping under way than any other country. Germany increased its output about 18,000 tons.

Italy and the United States remained in eight and ninth positions, respectively.

The production of the various countries during the last two quarters is given in the following table of tonnage:

	1934 Dec 31,	1934 Sept. 30,
Great Britain & Ireland	596,834	604,296
Germany	139,611	120,816
France	120,952	120,868
Japan	104,640	149,750
Denmark	78,630	74,938
Sweden	60,140	64,565
Holland	48,333	70,735
Italy	37,000	37,970
United States	20,103	22,225

Of merchant ships of 20,000 gross tons and above, each, five are being built in Great Britain and Ireland, and one in France.

Commend Grace Line Ships For Good Operation

Captains Walter Prengel, Alfred Adler and Alvin A. Anderson, commanding respectively the Grace liners, SANTA ELENA, SANTA ROSA and SANTA BARBARA, have received letters from Secretary Roper advising them that the naval officers who recently were assigned to make voyages of inspection on their vessel found a most satisfactory condition of discipline and operation.

The SANTA ROSA was inspected by Lieut. Commander John B. Kneip, U. S. N., the SANTA BARBARA by Commander Clarence Culbranson, U. S. N., and the SANTA ELENA by Lieut. Commander Lloyd J. Wiltsie, U. S. N.

The secretary's letter to Captain Prengel, identical with those to Captains Adler and Anderson, is quoted below:

"Your vessel, the S. S. SANTA ELENA, was inspected by Lieut. Commander Lloyd J. Wiltsie, U. S. N., who reports that the conditions on your vessel were excellent.

"I take this opportunity to express to you and your officers my gratification in regard to the discipline maintained and the general operation of your ship.

"Vessels flying the flag of the United States must be second to none in regard to all these conditions that assure the safety of the traveling public, and the report of Commander Wiltsie indicates that on your vessel these conditions are most satisfactory.

"The department feels confident that you and your officers will continue to maintain this excellent record."

The tanker BOSTON SOCONY of the Standard Vacuum Transportation Co. is being cut in two and having a new middle section installed at the Federal Shipbuilding & Dry Dock Co., Kearny, N. J. The cost will be about $100,000. Both the old bow and the old stern, which contains the propelling machinery, are in good condition, and can, therefore, be used to advantage.

Passenger Traffic Increases, West Coast to Europe

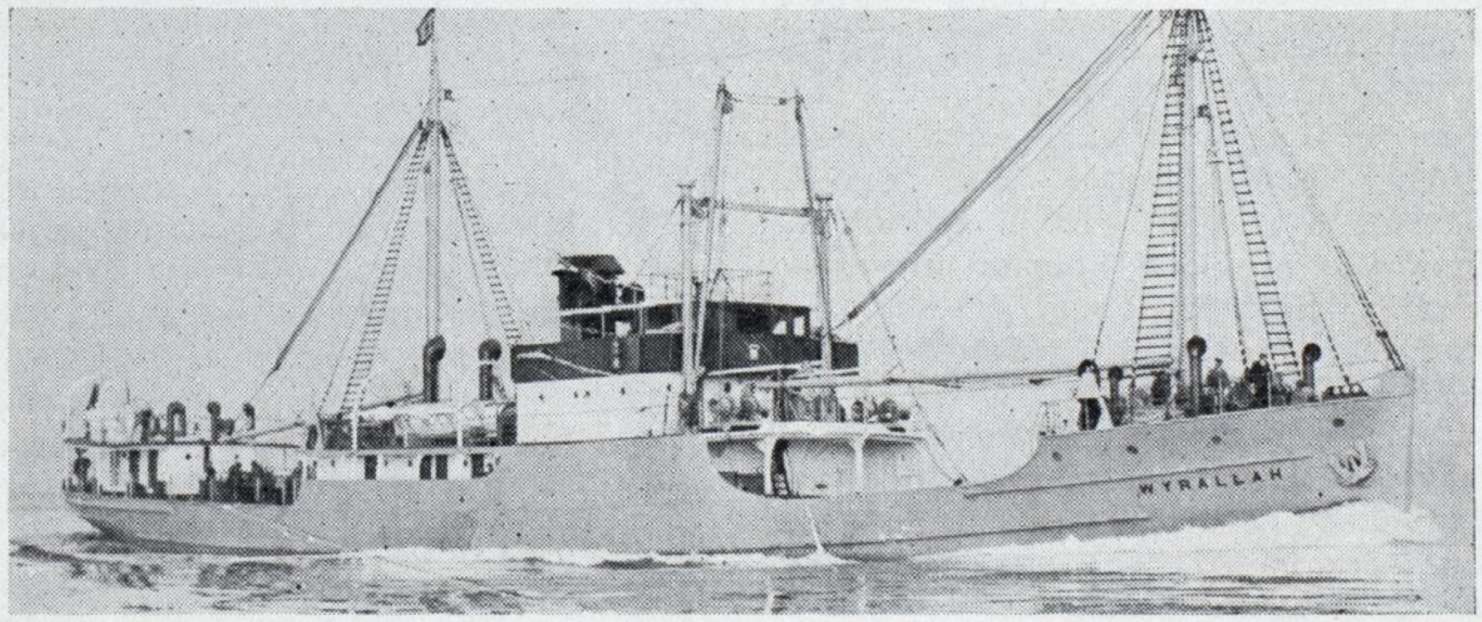
According to figures released Jan. 15 by C. R. King, secretary, North Pacific European Passenger conference, passenger traffic between Pacific coast ports and Europe via the Panama canal during 1934 was 22 per cent greater than in 1933. It was the best year since 1929.

All of this passenger traffic was carried in foreign ships. British, French, German, Danish, Dutch, and Swedish ships participated. These lines combined have an average of between three and four sailings a week and operate a total of 60 ships. Not a single American ship was to be found in this trade.

The United States Engineer office at Duluth on Feb. 1 will open bids for furnishing and installing complete in the United States dipper dredge COL. D. D. GAILLARD, located at Sandusky, O., one motor-driven air-cooled refrigerator compressor and evaporator.

Single Screw, Shallow Draft, Diesel Freighter

DESIGNED for coastal trade, and with shallow draft, the single screw motorship WYRALLAH, shown in the accompanying illustration, completed last fall by Burmeister and Wain Ltd., Copenhagen, for the North Coast Steam Navigation Co., Ltd., Sydney, New South Wales, has a number of interesting features. Of raised quarter deck type, with bridge and forecastle, the WYRALLAH was built under special survey of the British Corp. Cargo is carried in the forward and after holds, in the bridge space and in a deep tank. Total capacity of the holds is 56,500 cubic feet bales and the capacity of the deep tank for molasses is 98 tons.



Single screw, shallow draft, cargo motorship Wyrallah, built in Denmark. Speed, 12.25 knots

The cargo hold in the bridge space is insulated and cooled by circulating air and grids. This space is intended for the carrying of butter and meat. Two exceptionally long hatches, the forward one, 40 feet, 3 inches and the aft, 32 feet, 7 inches, both 14 feet wide, provide access to the holds for long and bulky cargo.

The principal dimensions of the vessel are: Length overall, 236 feet, 3 inches; length between perpendiculars, 215 feet; breadth molded, 36 feet, 6 inches; draft loaded, 12 feet, 8½ inches. The deadweight is about 1080 tons and the gross tonnage is about 1049. The total capacity for diesel fuel oil is 278 tons.

Facilities for handling cargo are very modern. Steel masts are fitted on the forecastle and on the after end of the boat deck, each provided with a long derrick to lift 12 tons, working on the McFarlane system. Two derrick posts are fitted on the forward end of the bridge deck, each having one steel derrick of 4½ tons capacity, working on the ordinary system. All winches as well as the windlass and capstan are electrically driven as is also the refrigerating machinery which works on the direct expansion ammonia principle. The steering gear is of the electric hydraulic type, controlled by telemotor from the bridge.

Propelling machinery consists of one 6-cylinder, 4-stroke, single acting, Burmeister & Wain diesel engine. The engine is of the trunk piston type, and operates on solid injection. It is a light but strong and easy running engine and develops 1100 brake horsepower at 155 revolutions per minute. Speed of the vessel at sea is about 12¼ knots.

Current for all of the auxiliary machinery, in the engine room as well as on deck, is supplied by two 65-kilowatt generators, direct coupled to 2-cylinder Burmeister & Wain diesel engines of 2-stroke, single acting type.

On the trial trip over the measured mile in the Sound of Copenhagen, Oct. 17, with the ship in loaded condition, the engine developed 1352 indicated horsepower at 154.5 revolutions per minute, giving a mean speed of 12.64 knots. Fuel oil consumption, including all auxiliaries, during the trial was .30 pound per indicated horsepower per hour.

Personal Sketches of Marine Men

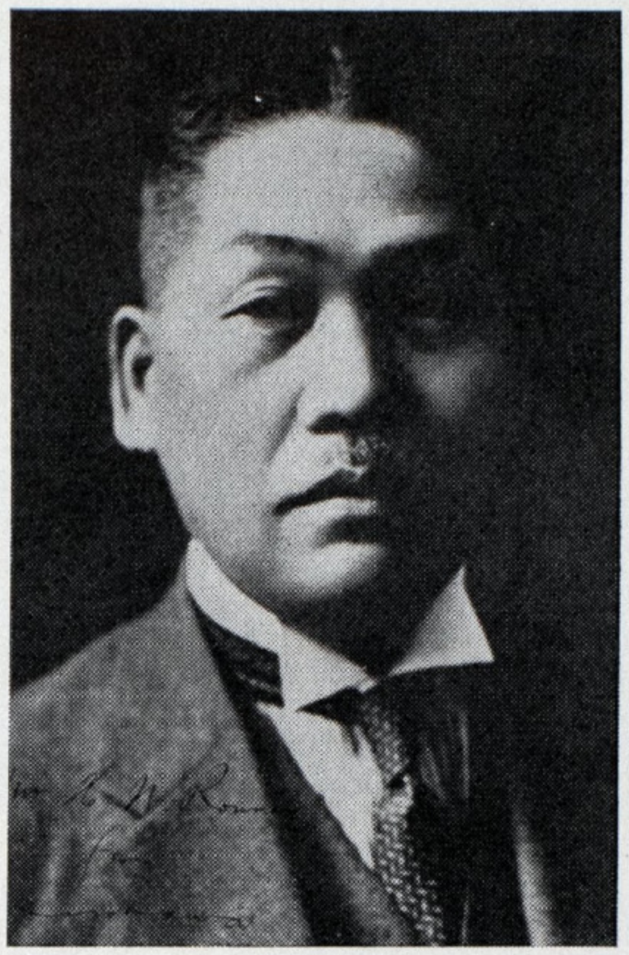
Shinjiro Kurokawa, President, Kokusai Kisen Kaisha

By A. H. Jansson

THROUGH his initiative and enterprise, a fleet of new, 19-knot, diesel propelled, super freighters are making maritime history.

DEMONSTRATING to the world that the old shibboleths in the shipping business must go, he is helping to create a demand for superior service.

HE HAS served for three successive years as president of Japan's Shipowners' association, a well deserved tribute to his leadership.



SHINJIRO KUROKAWA, president of the Kokusai Kisen Kaisha, one of the largest and most progressive steamship companies in Japan, is a popular and highly respected figure in shipping circles both in his own land and in the world at large. The present fleet of the Kokusai line consists of 33 steamers and 6 modern super high speed motorships, and as this is written, with a seventh motorship under construction.

These modern vessels of 19 knots speed, have been added to the fleet within the last two years. It is the aim of the company to continue the replacement of its steamships by high speed efficient vessels. Many of the older steamships of the line have been disposed of during the past few years. The remaining steamships, while not comparable to the new motorships, are good serviceable vessels fitted with modern oil burning equipment.

The six new high speed motorships are engaged in the service between Japan and New York including the Philippine Islands and Singapore. This is a regular express service and the run from Yokohama to New York via Los Angeles and the Panama canal is made in less than 25 days. Regular services are also maintained between New York and Hamburg and New York, Europe and Japan; Japan and Australia; Japan and Bombay; Japan and Formosa; and between Japan and Africa. Vessels are also available for world wide chartering.

Head office of the Kokusai Kisen Kaisha is located in Tokyo. There are branch offices in all principal port cities including Kobe, Yokohama, Manila, Los Angeles, New York, London and Hamburg; with agents in practically every seaport in the world.

Perhaps no other Japanese shipping man has had a broader or more diversified experience in shipping affairs than Mr. Kurokawa. In 1916, after 21 years of service with the Nippon Yusen Kaisha, some years of that time in London and then at Shanghai, he became chief of the operating department of this line.

At the end of the war he accompanied Baron Kondo, the then president of the Nippon Yusen Kaisha to Versailles, where he assisted his chief in the negotiations of shipping affairs at the peace conference. Two years later he became manager of the Kobe office where for several years he served on the special committee of the chamber of commerce. In 1923 he was elected dicector and vice president of the Nippon Yusen Kaisha, resigning, however, in the following year to become a director of the Kokusai Kisen Kaisha.

Mr. Kurokawa then spent some time traveling in Europe and made a study of world shipping conditions. In 1927 he was elected president of the Kokusai interests. His later appointments include membership on the committee attached to the Tokyo legal court and the special committee set up to study shipping conditions in Japan.

In 1932 he was asked to give the benefit of his advice and experience to the shipping commission appointed by the Japanese government, and in that year he was also elected president of the Japan Shipowners' association, being unanimously re-elected to this office in 1933 and 1934. To be selected three successive years as head of such an important association is a tribute to his great ability and to the confidence in which his associates hold him.

In recognition of his outstanding service to his country, he has been awarded the Fifth Order of the Rising Sun. He is a graduate of Aoyama Gakuin college. His special recreations are music and golf. He maintains his residence in a beautiful section of Tokyo, where in his delightful home with his gracious and charming wife their hospitality is widely renowned.

Hold Conference at London To Improve Shipping

The preparatory meeting of the delegates to the international shipping conference opened in London on Jan. 14. Lord Essendon was elected chairman. The meeting was opened by Major R. J. Dunlop, president of the chamber of shipping.

The conference was prompted by the need for adjusting the supply of world tonnage to demand. Its object is to prepare proposals designed to secure this end. These proposals are then to be submitted to a full meeting of the international shipping conference to be held as soon as possible. Neither the delegates nor their associations will be committed in any way to these proposals, which will be submitted for the examination of each association in advance of the full meeting of the conference.

In the course of the first meeting, the leading representative of each country participated in the discussion. It was agreed to prepare a draft scheme of rationalization for consideration by the constituents and then to be given subsequent consideration at a full conference.

A drafting committee was appointed to prepare and submit proposals. The drafting committee's report will be laid before the meeting as soon as possible.

The United States is represented at this important conference by R. J. Baker, president of the American Steamship Owners' association, who arrived on the United States liner MANHATTAN. An improvement in shipping conditions is the primary objective of the conference, and to accomplish this some equitable reduction in merchant marine tonnage is sought.

It is understood that Mr. Baker will also serve as "unofficial" representative of the government. The state department has been advised of the action of the American Steamship Owners' association. The government is not sending a delegate of its own, but it is in favor of the association's participation in these maritime deliberations, as it is believed that the good will created will assist the government in any negotiations which may be undertaken to arrange reciprocal trade agreements.

The Ford Motor Co.'s freighter ONONDAGA was scheduled to arrive Los Angeles harbor Jan. 15 with a full 2500-ton cargo of motors and parts from Philadelphia. This arrival marks the resumption of Ford's intercoastal service, suspended last August.

To Maintain Services of Government Lines

On Jan. 5, James Craig Peacock, director of the shipping board bureau, department of commerce, announced that notwithstanding any changes which may be made on or after Feb. 5, 1935, in the present agreements with the managing operators of government-owned steamship lines, service fully comparable to that now rendered by those lines will continue available to the shipping public. There will be no interruption in any of the services and the managing operators have been authorized to continue the solicitation and acceptance of business on that basis.

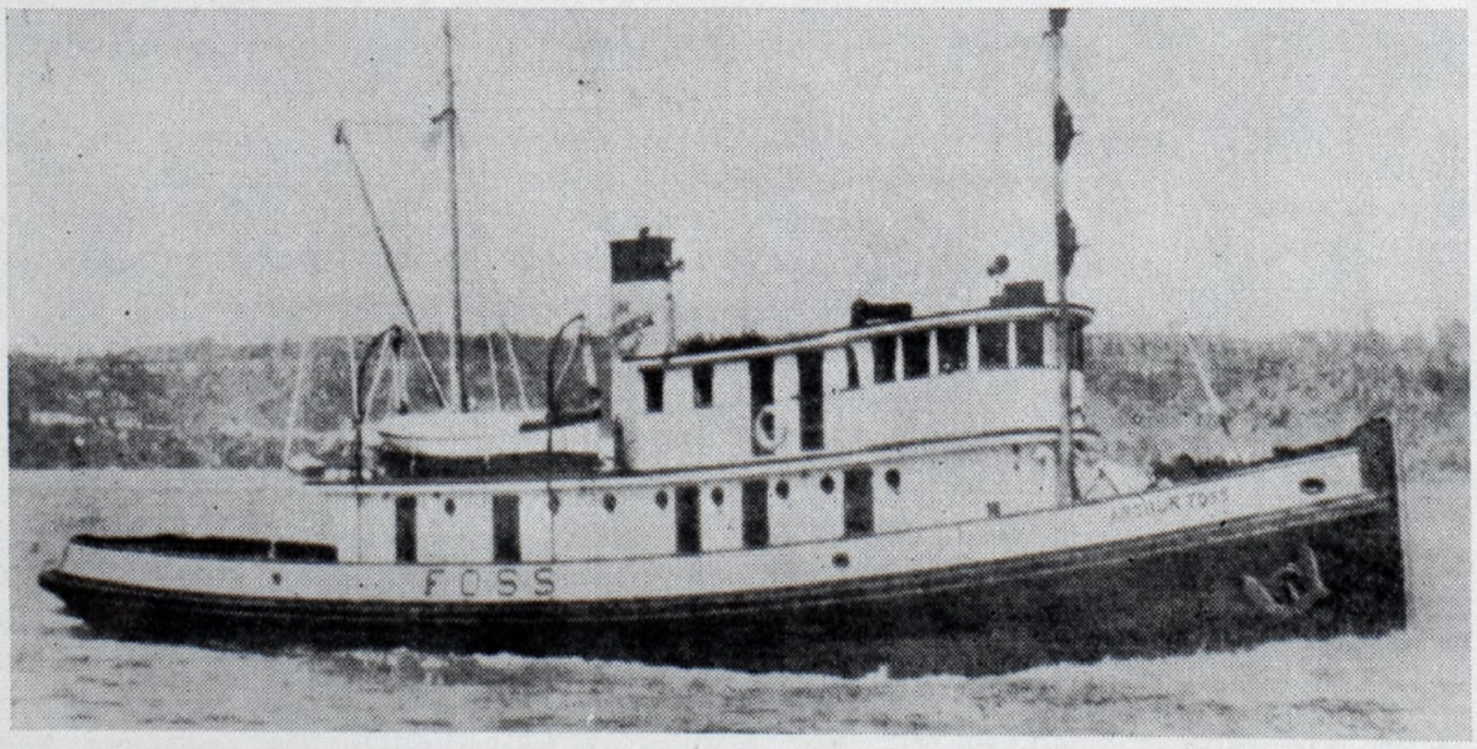
On her maiden voyage the Iino Shoji Kaisha's 18-knot diesel tanker KYOKUTO MARU, departed from Los Angeles harbor early in January with 84,000 barrels of crude oil for Japan. She is under charter to Asano Bussan Kaisha.

The Marine Iron & Shipbuilding Co., Duluth, has been awarded contract by the United States engineers in the sum of $27,198.75 for repairs and installation of a new boiler in the United States tug ESSAYONS.

Tug Converted from Steam to Diesel Drive

THE accompanying illustration shows the powerful diesel towboat ARTHUR FOSS, converted from steam to diesel drive during 1934. The owner is Foss Co. Inc., Seattle. Formerly named WALLOWA, this vessel had been for years one of the best known steam tugs in the Pacific Northwest. Conversion to diesel power gives the owner a handy and economical vessel for inside towing and harbor work while at the same time having the necessary power and cruising radius for ocean tows.

Of wooden construction, the ARTHUR FOSS was extensively rebuilt at the time the diesel engine was installed. General dimensions are: length between perpendiculars, 111 feet, 7 inches; beam, 23 feet, 11 inches; depth, 11 feet, 7 inches. The bunker capacity, in diesel fuel oil, is 725 barrels which would give a sailing radius without refueling of 9000 miles, at a consumption of 0.42 pound per horsepower per hour.



Tug Arthur Foss, fitted with 700 B.H.P. Washington diesel engine

The main propelling engine, supplied by the Washington Iron Works, Seattle, is a 700 brake horsepower, 4-cycle, 6-cylinder, reversible diesel engine, direct connected to the propeller shaft by means of a one-way clutch built into the engine between the fly-wheel and thrust bearing. This permits the towing winch to be driven from the main engine, thus giving ample power for the winch without a large auxiliary engine.

Use of the one-way clutch also conserves air when maneuvering and allows the attached main engine air compressor to build up the air supply without starting the auxiliary compressor set. The main engine cylinders are 17 inches in diameter and the stroke is 24 inches. The rated horsepower of 700 is developed at 200 revolutions per minute. The engine is 30 feet, 1 inch in length overall; 6 feet, 7 inches in width; 12 feet, 9½ inches in height overall; and the weight is 133,000 pounds.

Equipment in addition to the main engine includes a 7-horsepower, diesel driven auxiliary generator, compressor and scow pump. There is also a new towing winch, mechanically driven from the main engine; and an air operated steering engine.

European Shipping

(*Continued from Page* 11)

are now being formed to realize the assets for the benefit of the debenture holders who will probably be comfortably covered. In this matter there has been concern about the ordinary shares of the Union Castle line, which are among the most promising assets of the Royal Mail Steam Packet Co. The directors of the Union Castle, who have contrived to get onto their feet again in remarkable fashion, are naturally anxious that these shares, carrying with them the control of the company, shall not fall into unpalatable or even foreign hands and the question as to whether the preference shareholders shall not continue the control which they now possess owing to the arrears of their dividend will be thrashed out before the courts.

Germans in Far East Trade

German progress and plans on the Far Eastern trade have caused great alarm to the other European lines concerned with it. There is a cargo conference to the Far East but none for the passenger business and the new ships which are now being completed for the North German Lloyd and Hamburg American companies on this route will upset all previous calculations. They not only receive state assistance in their construction and running but have an invaluable hidden subsidy in the German government's present financial policy. The Italian companies, who are the newcomers on the route with fine ships transferred from the North Atlantic and favored by heavy running subsidies, are the first to take alarm and there is talk of their trying to form a passenger conference with the British, French and possibly the Japanese in order to keep out the Germans or at least to insist on equal terms. What the result of this will be cannot yet be foretold.

The French Tasso act has come into force with bigger state aid than the French merchant service has ever before enjoyed and the Germans and Italians are also giving subsidies on a very large scale. Belgium, which has hitherto kept clear of subsidies, is now wavering and there are great fears that she may turn over to the subsidy policy.

Find Against Underwriters

The long drawn out L'ATLANTIQUE case has finally gone against the underwriters with colossal sums in law costs, but it has left its mark and will probably have its influence on international marine insurance in the future, especially with regard to blind reinsurance treaties. At the same time her fire, and others within the last few years, have caused far more attention to be paid to the prevention of fire in ocean going liners. The sprinkler system has been introduced into the British merchant service in a packet running between Scotland and Ireland and in the giant QUEEN MARY. Lloyd's offering every encouragement but fully realizing, with the rest of the shipping world, that a sprinkler system is useless unless it is constantly examined and kept in perfect working order.

Otherwise the principal items of European interest at the moment is the decentralization of German shipping following the costly experiment of lumping it all into huge groups, and the steady progress made by the Soviet state fleet. Russian construction is slow and in spite of all the efforts of the authorities it shows very little improvement, so that the heads of the government are now abandoning their hope of having the entire Russian merchant service composed of modern motorships at once and are buying good class tramps while their original plans are slowly approaching fruition. As they are now paying cash instead of demanding long credit they are getting some fine ships which suit their purpose excellently.

Influence of British Policy

The British government's scheme for assistance to the merchant service is naturally influencing foreign shipping and shipbuilding as well as our own, and everybody who can is sitting on the fence to watch the progress of events. But things are now getting under way and before the next quarterly report comes to be written it is probable that considerable movement will have been made, although whether this will help in the rectification of the world's shipping problems still remains to be seen.

Joseph A. MacDonald Dies

After an illness of several months Joseph A. MacDonald, president of Henry J. Gielow Inc., naval architects, New York, died at his home in New York on Jan. 11 at 39 years of age.

The company which Mr. MacDonald headed after the death of Henry J. Gielow is particularly noted for its work in yacht design. A number of the largest and finest sea-going yachts built in the United States, including J. Piermont Morgan's CORSAIR, were designed by this company.

Mr. MacDonald joined the firm as office boy and became the late Mr. Gielow's ablest and most trusted advisor. He is survived by his widow and three children.

Thomas A. Wolfe Dies

Thomas A. Wolfe, marine superintendent of the French line, died Jan. 12, at the French hospital, New York.

Mr. Wolfe was born in Greenwich Village on Sept. 13, 1880. After graduating from La Salle college, he entered the employ of the French line as a checker on the old French line pier 42. He served in various capacities, as clerk, accountant, port steward, paymaster and assistant marine superintendent, until his appointment as marine superintendent seven years ago, Jan. 1, 1928.

During the World war, Mr. Wolfe had charge of the operation and dispatch of all the company's vessels and a large number of chartered vessels of all types, carrying supplies for the allied armies.

Agree to Increased Wages

Following an increase in wages, improved working conditions and recognition of the union for unlicensed personnel which 40 American steamship companies agreed to on Jan. 1 in an agreement with the International Seamen's union for one year, a number of American steamship companies including the Ore Steamship Corp., Moore & McCormack, the Calmar line and the Atlantic, Gulf & West Indies Steamship lines, voluntarily granted wage increases to the licensed personnel of their vessels. It is understood that other companies have or are planning to do the same. The higher wage scale for licensed personnel in the case of the Atlantic, Gulf & West Indies Steamship lines will mean an additional $250,000 annually.

Bids, it is understood, are to be received about Feb. 10 by George G. Sharp, naval architect, 30 Church street, New York, on plans and specifications he has prepared for the renovation and rebuilding of two Hog Island type ships for the American Caribbean Line Inc. recently organized by Moore & McCormack Co. for trade to the West Indies.

Accommodations are to be provided on each vessel for from 150 to 175 passengers.

Masters of ships in the Savannah, Porto Rico, and Southern Pacific Steamship line, have received letters of commendation on the discipline and generally satisfactory operations of their vessels, from Secretary Roper, based on favorable reports received from naval officers who have made voyages on these ships.

Marine Review

Reg. U. S. Pat. Off.

The National Publication Covering the Business of Transportation by Water

S. S. Socony-Vacuum, Tanker, Launched

February 1935

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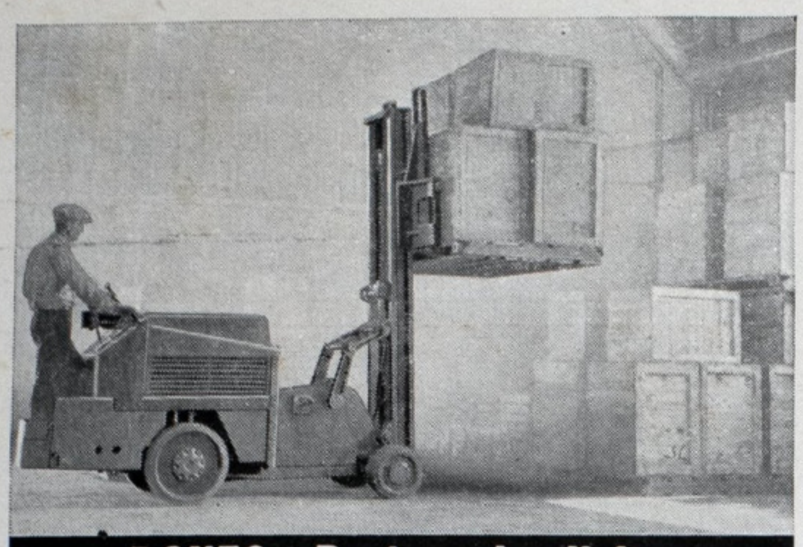
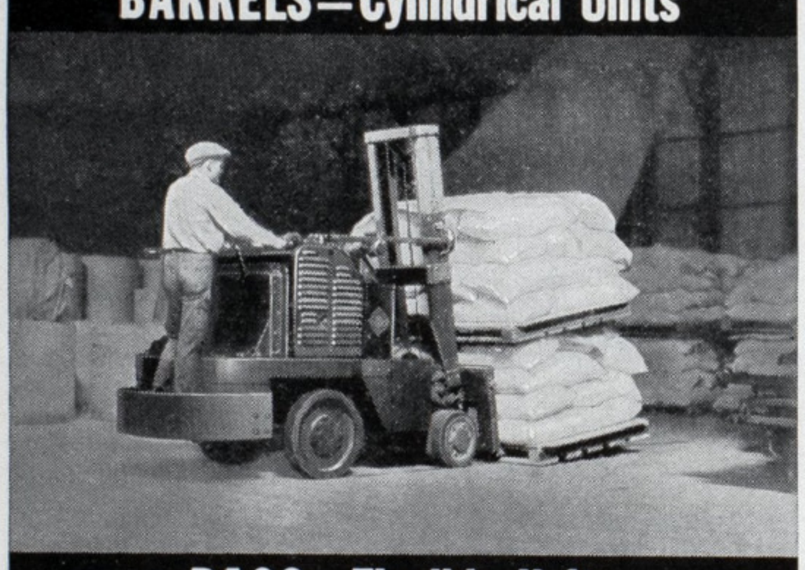


BOXES—Rectangular Units

BARRELS—Cylindrical Units



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Look at the business-like warehousing views at the left. Here are the four standard types of Unit Packages stacked on inexpensive Pallets of identical pattern. Results: quick pick-up; rapid transportation with up-to-the-minute Elwell-Parker Tiering Fork Trucks; protection to cargo against damage; complete safety to operator; less annoyance and delay to consignee.

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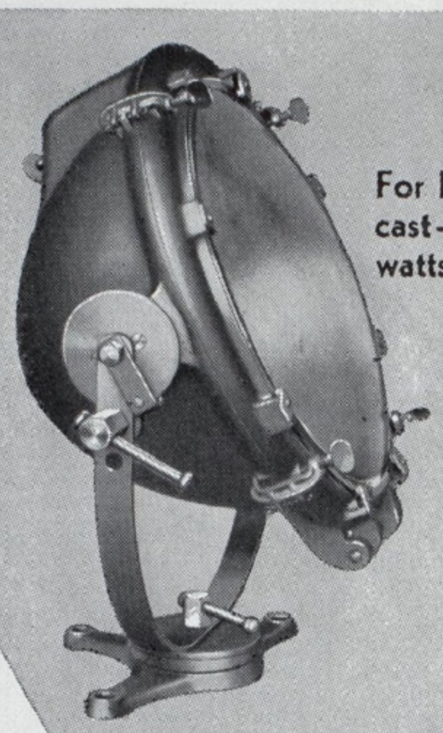
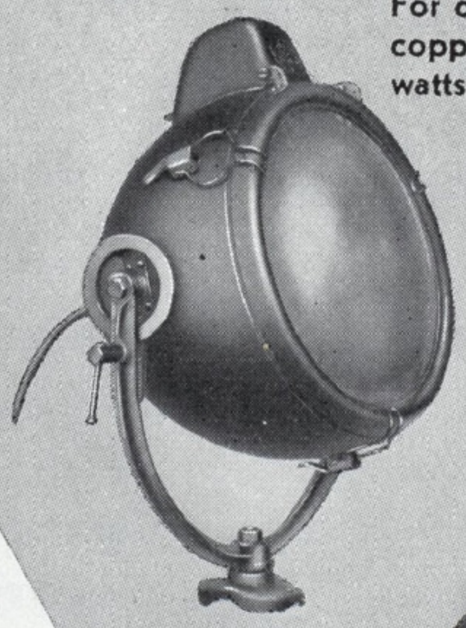


For large-area lighting; cast-aluminum, 1500 watts

For docks, loading platforms; open-type, up to 1500 watts



For construction work; copper-bronze, 1000 watts

Portable, for construction work; aluminum, up to 1000 watts

A portable light-weight Handy unit; 100/150 or 200 watts

THE 1500-watt cast-aluminum floodlighting projector is ideal for large-area lighting. For lighting loading platforms, docks, and completing work on superstructures the 1500-watt low-cost open-type floodlight will fill all your needs. On many other outdoor jobs the 1000-watt copper-bronze projector will be of greatest aid in construction. On work inside and outside the hull, the light-weight 1000-watt aluminum projector and the small Handy units for portable work will speed up production. These and other units are available with a variety of mountings to meet every situation. Let us send you our booklet, GEA-1865, G-E NOVALUX FLOODLIGHTING EQUIPMENT. Write to Dept. 6J-201, General Electric, Schenectady, N. Y.

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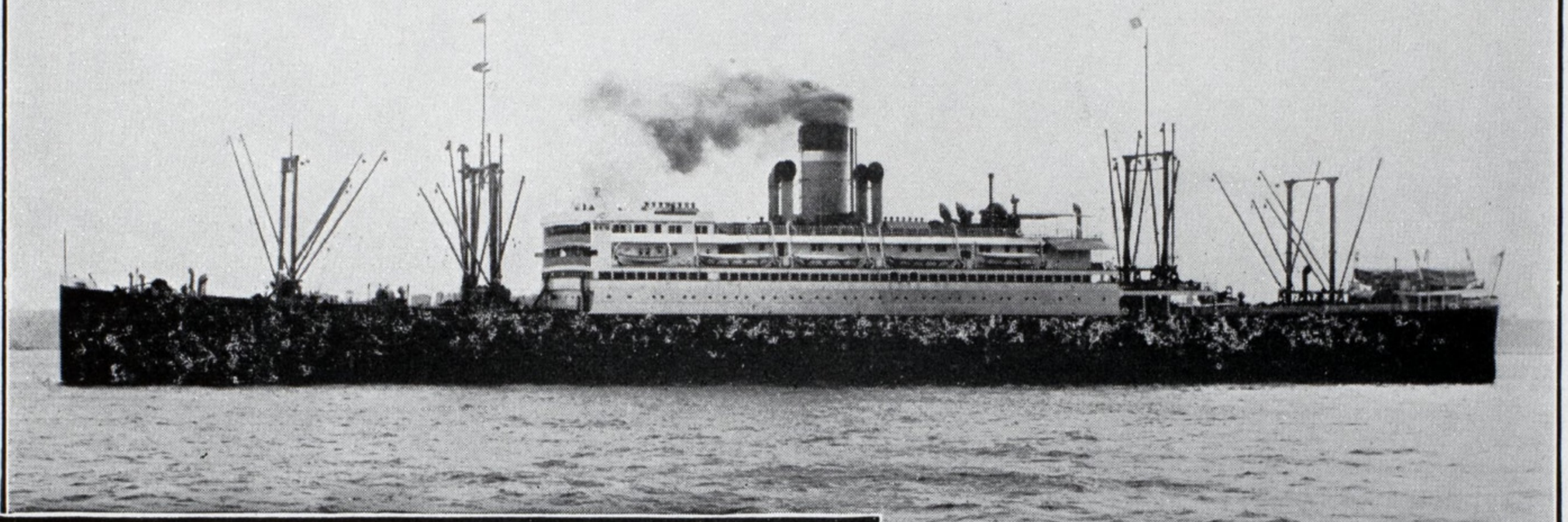
SAFE LUBRICATION

FOR THE LONG HARD RUN



The SS Southern Cross, one of the Munson Liners which runs from New York to Buenos Aires. In the extremes of temperature which she encounters in her trip across the Equator, Gulf lubricants provide sure protection for her power-plant equipment.

For these requirements	Gulf supplies these products
1. RECIPROCATING Steam Engines (Steam Cylinders)	Gulf Crystal Cylinder Oils B, C or D Gulf Acorn Cylinder Oils B, C or D Gulf I-C Oils A, B, C or D Majestic Oils A, B, C or D
(External Lubrication)	Tropical Marine Engine Oil R Marine Engine Oil Gulf Marine Engine Oil Gulf Harmony Oils B, C or D Gulf Security Oils B, C or D
2. STEAM TURBINES (Direct Connected)	Gulfcrest Oils A or B Gulf Harmony Oils A or B
(Reduction Gear Drives)	Gulfcrest Oils C, D or E Gulf Harmony Oils C, D or E
(Ring Oiled Bearings)	Gulfcrown Oils B, C or D Gulf I-C Oils A, B or C Gulf Harmony Oils B, C, D or E Gulfcrest Oils B, C, D or E
3. DIESEL ENGINES (Crosshead Type) Power Cylinders	Gulfpride Oils 30, 40, 50 or 60 Gulf I-C Oils A or B
Bearings	Gulfcrest Oil E Gulf Harmony Oil E
(Trunk Piston Type)	Gulfpride Oil Winter, 30, 40 or 50 Gulf Parvis Oil M, H, A or B
4. AIR COMPRESSORS	Gulfcrest Oils C, D or E Gulf Harmony Oils C, D or E Gulf Airco Oils A or B
6. SPEED REDUCERS (Spur, Herringbone or Helical)	Gulfcrest Oils B, C, D or E Gulf Harmony Oils B, C, D or E Gulf Paramount Oils A, B or C
(Worm Gear Type)	Gulfcrown Oils B, C, D or E Gulf I-C Oils A, B, C or D Gulf Crystal Cylinder Oils B, C, D Gulf Acorn Cylinder Oils B, C, D

WHEN SHIPS ON LONG, HARD RUNS encounter radical changes in climate and conditions of operation, the lubricants in service must supply an extra margin of safety to provide for the unusual conditions.

Gulf's *complete* line of quality marine lubricants permits the selection of just the right type of oil or grease to provide that extra margin of safety.

A Gulf engineer who has had broad experience in the lubrication of marine equipment similar to yours will consult with you regarding the lubricants which will supply the best protection for *your* equipment.

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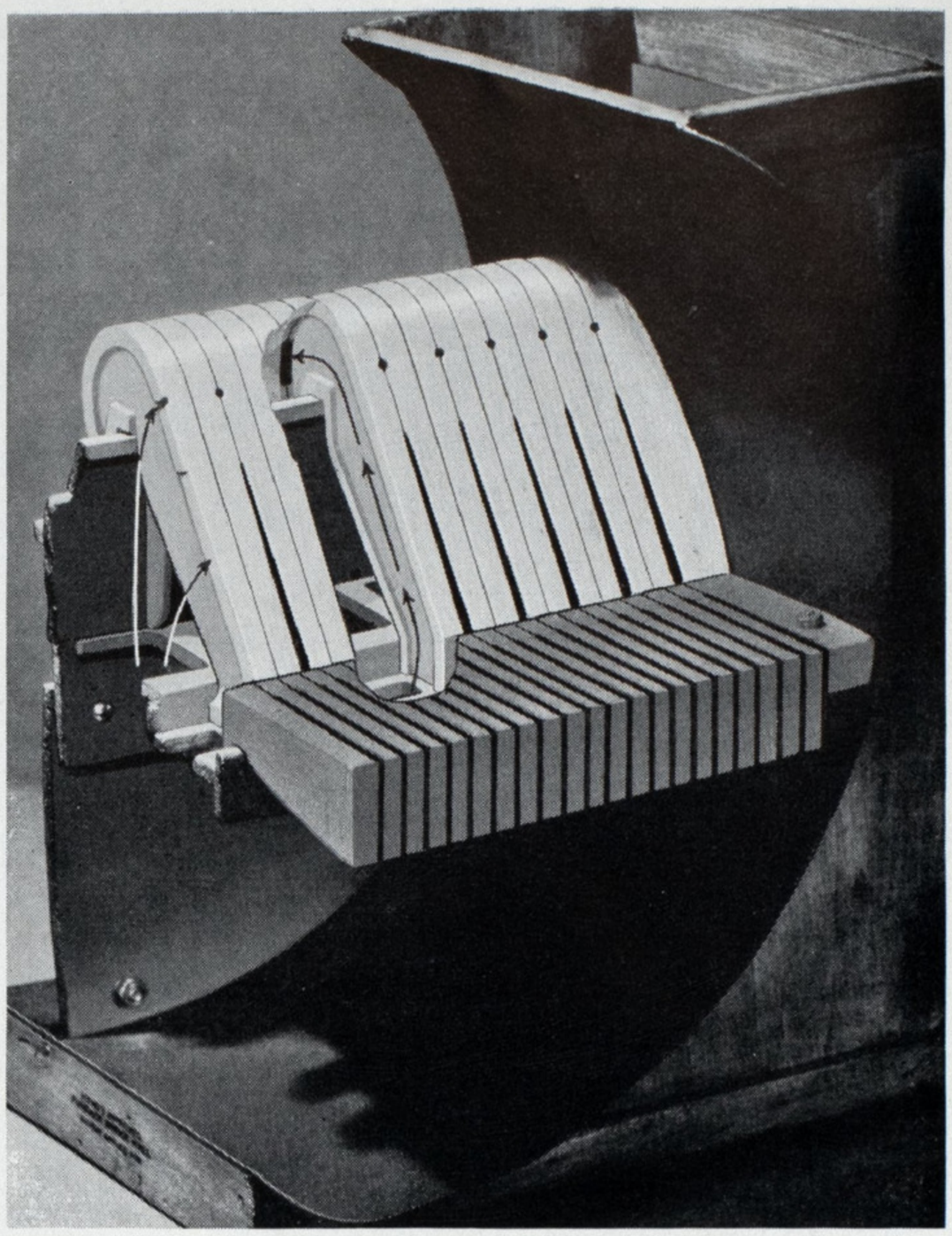
HYND'S

new, improved

Furnace

BRIDGE WALL

(PATENT APPLIED FOR)



This sectional model lets customers see instantly the features of this new bridge wall. The photo has been retouched to bring out the air channels. Arrows indicate the flow of air.

Offers these 6 advantages:

1. ***New, more efficient air distribution.***
2. ***Bars can't be knocked out by firing tools.***
3. ***Individual bars easily replaced.***
4. ***More* effective *grate surface.***
5. ***More economical and efficient use of coal.***
6. ***Cooler operation — reduces burning and distortion.***

THE efficiency and serviceability of this type of furnace bridge wall has been amply demonstrated, both on the Lakes and at sea.

Hence American Ship, as Great Lakes agent, is glad to announce the *new, improved Hynd's Furnace Bridge Wall.*

It provides a double stream of air: one to the fire and the other to the combustion chamber. This results in more efficient burning of coal; gives new economy in fuel; and reduces smoke.

These air streams serve to cool the bars and the back of the bearer plate, which greatly reduces burning and distortion. They also increase the *effective* grate surface of the bridge wall, which makes it easier to take better care of the fire.

Another feature of the new Hynd's Furnace Bridge Wall is new simplicity and durability in construction. Bars cannot be accidentally knocked out of place by firing tools. Yet any bar can be easily replaced without disturbing the other bars.

More complete information on the new Hynd's Furnace Bridge Wall will be sent you on request. Or we shall be glad to make an estimate for any of your furnaces.

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Main Office: Foot of West 54th Street, Cleveland

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American Ship Building Co.	*American Ship Building Co.*	*Buffalo Dry Dock Company*	*Chicago Ship Building Co.*	*Superior Shipbuilding Co.*

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Another reason lies in the new separators of Exide Mipor — the permanent storage battery plate insulator. It is immune to heat and vibration, and unaffected by the electrolyte.

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